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Implementation and evaluation of an INS system using a three degrees of freedom MEMS accelerometer

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NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

**IMPLEMENTATION AND EVALUATION OF AN INS SYSTEM USING A THREE DEGREES OF FREEDOM MEMS ACCELEROMETER**

by

Ender Emir

December 2008

Thesis Advisor:	Richard Harkins
Second Reader:	Brett Borden

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13. ABSTRACT (maximum 200 words)

   Position determination is one the most important aspects of navigation for an autonomous vehicle and can be accomplished through a variety of methods. Advances in Global Positioning System (GPS) technology, improved accuracy by a Wide Area Augmentation System (WAAS), wider coverage, easy integration and low cost, make GPS the most preferable alternative for the navigation of autonomous vehicles. However, an autonomous vehicle must be able to navigate and determine its position on earth without external navigation aids such as GPS, Loran and Transit. A method of inertial navigation, called dead reckoning, where the robot calculates its position from a known reference through using laser range finders, gyros, shaft encoders and accelerometers, becomes more important for navigation with no external aids.

   This thesis examines the navigation ability for robots using a three degree of freedom accelerometer, which can sense the instantaneous accelerations in three dimensions. Tests and results of the accelerometer as an inertial system for a mobile robot are implemented in 1-D and 2-D. The results demonstrated that Crossbow MEMS accelerometer can be used for a distance of 10 meters for mobile robot navigation with different levels of errors according to the path followed in 2-D.

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**IMPLEMENTATION AND EVALUATION OF AN INS SYSTEM USING A
THREE DEGREES OF FREEDOM MEMS ACCELEROMETER**

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Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN PHYSICS

from the

**NAVAL POSTGRADUATE SCHOOL
December 2008**

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TABLE OF CONTENTS

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LIST OF FIGURES

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LIST OF TABLES

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I. INTRODUCTION

A. BACKGROUND

For an autonomous robot, position determination is of primary importance to the navigation scheme. One would think that attaching an accurate GPS (Global Positioning System) sensor could be a solution to the localization problem. However, "such a sensor is not currently practical" [11]. The accuracy of GPS can be as good as 2-3 meters, but this is not desirable for the navigation of miniature mobile robots. Moreover, GPS signals are not available indoors and in underwater operational environments [11]. This situation makes an Inertial Navigation System (INS) increasingly important in autonomous robotic applications. "INS is self-contained, because it is independent of external reference points and passive because no energy is transmitted to obtain information from an external source, but like all dead-reckoning systems its output degrades with elapsed time and distance traveled, and must be reset periodically" [12].

Dead reckoning is a common navigation technique. In order to estimate the change in position of a mobile robot, INS uses the outputs from dead-reckoning sensors such as accelerometers (to measure acceleration), rate gyroscopes (to measure rate of change of velocity), and magnetometers (to measure heading) [1]. By integrating acceleration over time, INS can determine the instantaneous velocity, and then by integrating the instantaneous velocity, it can determine position. These integrated quantities are used to update the position of the robot, relative to a known or starting reference point.

This thesis uses a three-degree of freedom accelerometer to estimate the position of a mobile robot by measuring the instantaneous accelerations in 1-D and 2-D.

B.   RESEARCH QUESTIONS

This thesis will examine the following research topics.

- Evaluate the output of the three axes MEMS accelerometer
- Develop a software configuration to convert the data from inertial sensor to determine the linear position displacement
- Develop a software configuration to use the accelerometer for the three-dimension navigation of autonomous vehicles
- Characterize the three axes MEMS Crossbow accelerometer

C.   ORGANIZATION OF THESIS

The purpose of this thesis is to evaluate the acceleration and angular change in the robot's fixed frame x, y, and z axes. This is accomplished using a digital accelerometer for the eventual implementation in an onboard inertial navigation system.

An autonomous robot would be expected to operate in the absence of any external navigation aids. For example, an Underwater Autonomous Vehicle (UAV) must determine its position while navigating submerged. On the other hand, a Micro Aerial Vehicle (MAV), while operating in a building, must be able to find its target area. Inertial navigation becomes more important in cases like these.

Chapter I presents the background for inertial navigational systems and the organization of thesis.

Chapter II reviews the implementation of autonomous navigation as an integrated navigation system that employs both GPS and INS sensors.

Chapter III provides specifications of Rabbit 2000 and Crossbow CXL-LP accelerometer. The evaluation and implementation of the accelerometer is discussed in this chapter. This chapter also includes codes in MATLAB and C programs, which are required for measuring the voltage outputs from accelerometer to get the accelerations and integration of accelerations to measure the displacement.

Chapter IV includes the analysis of the experimental results

Chapter V presents the thesis conclusions and provides recommendations for future research.

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II. AUTONOMOUS BEHAVIOR

A. AUTONOMOUS NAVIGATION

Autonomous robots can perform different levels of navigation without human guidance. They use variable kinds of inputs to determine their position and to stay in the desired track on the way to the target area. Autonomous robots are also expected to adapt themselves to changing surroundings by using information gained by the sensors on board. Sensors used for the autonomous robot navigation have a large range, from sensors using external navigation aids, such as GPS and LORAN to motion sensors, which sense the change in velocity and the angular change such as accelerometer, gyroscopes or other motion sensing devices [1].

Navigation of autonomous robots can be achieved through a variety of methods; however, they are mainly defined in two categories.

- navigation based on external aids
- navigation based on built-in sensors

External-signal-based navigation systems such as, Loran, Omega and GPS, are able to estimate the position of [a] vehicle only when there is enough signal. "Loran and Omega are inaccurate compared to GPS. While Loran covers almost the entire northern hemisphere, it has almost no coverage in the southern hemisphere" [2]. Improvements in GPS technology have increased its navigational accuracy worldwide.

Sensor based navigation can be implemented by a built-in system that can automatically determine the position, velocity, and attitude of a moving vehicle for directing its future course. Based on prior knowledge of time, gravitational field, initial position, initial velocity, and initial orientation relative to a known reference frame (coordinate system), an inertial navigation system (INS) is capable of determining its present position, velocity, and orientation without the aid of external information. The generated navigational data are used to determine the

5

future course for a vehicle to follow to bring it to its destination. The sensors making these measurements, based on one of the basic properties of mass-inertia, are gyroscopes and accelerometers [3].

B. GPS NAVIGATION

Among the positioning systems, GPS is the most accurate. A modern GPS unit is low cost and provides high accuracy compared to others, for example.

- GPS is widely used
- GPS receivers are easy to get at low costs
- GPS system is reliable
- GPS is used in various air and land navigation applications [4]

Navstar GPS is a space-based positioning system that enables GPS receivers to determine their position, time and velocity. It is used for both military and civilian applications at different levels of accuracy. It was originally designed to provide navigation information to U.S. military forces" [5]. The system can be broken into three major parts.

- The space segment
- The user segment
- The control segment

The signals and segments of the GPS can be seen in Figure 1 in detail.

1. The Space Segment

The space segment consists of orbit space vehicles (SVs) that are satellites providing signals-in- space (SIS). The GPS constellation comprises 24 satellites orbiting Earth in radii of approximately 20.200 km. every 12 hours. The 24 satellites are equally spaced 60 deg apart in six orbital planes of 55 deg. inclination. A user, from any point on the earth, can receive signals between five and eight from satellites simultaneously [6]. The satellites transmit ranging codes

and navigation data by using code-division multiple access (CDMA) on two carrier frequencies; L1 (centered at 1575.42 MHz) and L2 (centered at 1227.60 MHz) [7].


Planned Constellation :
- 6 Planes, 55' Inclination
- 24 Satellites

FREQUENCY	RF SIGNAL LEVEL (minimum values received)	
	PRN SIGNALS	
	C/A NORMAL MODE (dBW)	P (Y) (dBW)
L₁	-160	-163
L₂		-166
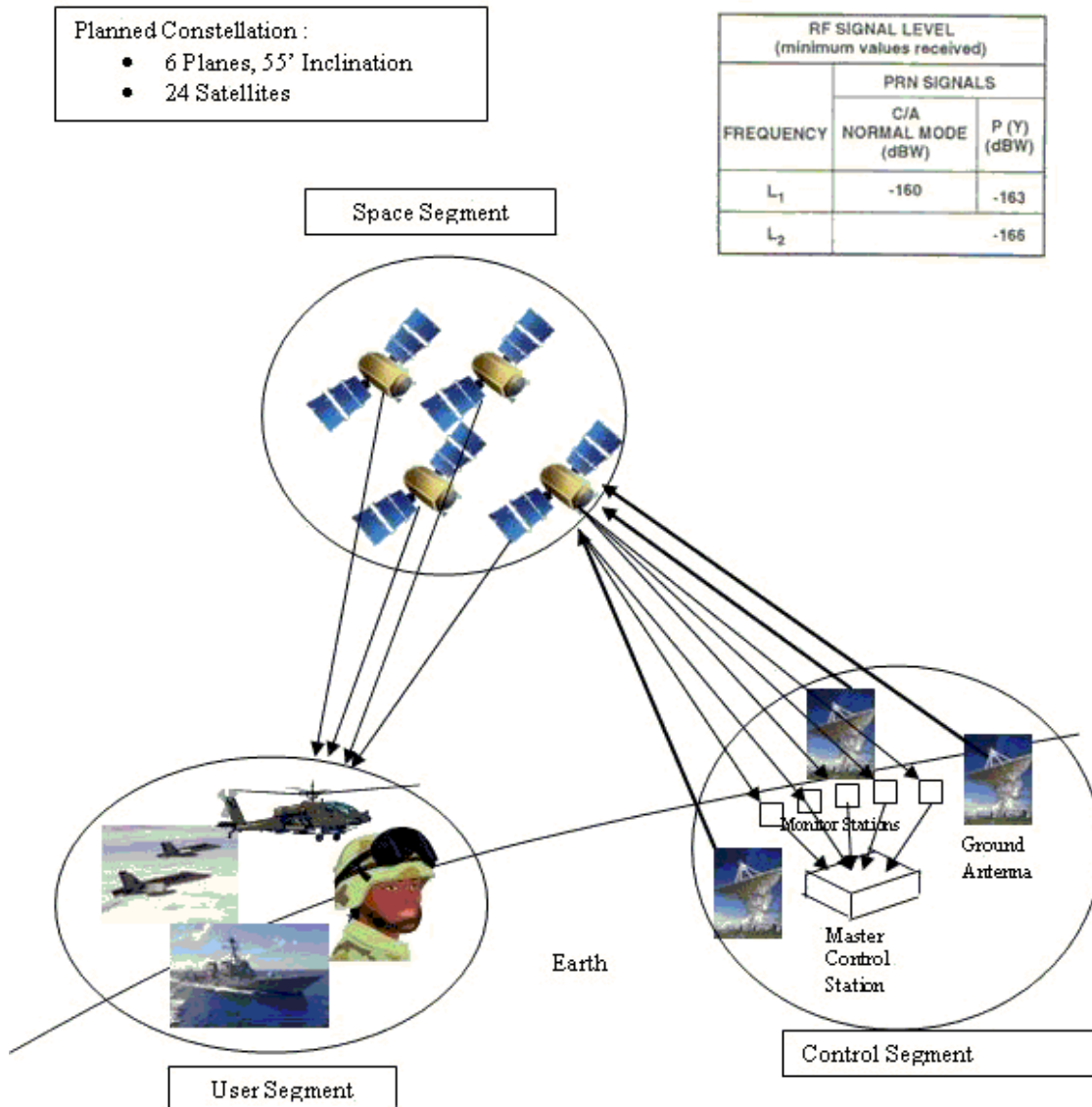
Figure 1.   Characterization of GPS signals and segments (From: [5])

2.   The User Segment

The GPS user segment consists of thousands of GPS receivers on the ground, in the air and user community. When GPS was used first, two signals

were provided; a coded signal for military (P-code) and a non-coded signal for civil applications (C/A) and broadcast on different frequencies [5]. "C/A code is broadcast on the L-band carrier signal known as L1. The P-code is broadcast on the L1 carrier in phase quadrature with the C/A carrier and on a second carrier frequency known as L2" [5]. Characteristics of both the L1 and L2 signals are shown in Figure 2. They were broadcast on different frequencies. A GPS receiver receives the P-code or codeless signals from four or more satellites and these results are used to determine its current position [6].

GPS Spread Spectrum Signal

P (dBW)

THE L₁ SIGNAL

2.046 MHz
—C/A CODE
—P CODE

1575.42 MHz
20.46 MHz

C/A CODE: 1.023 MHz
1023 BITS
1 ms REPEAT

P CODE: 10.23 MHz
6.18×10^{12} BITS
7 DAY REPEAT

P (dBW)

THE L₂ SIGNAL

—P CODE

1227.6 MHz
20.46 MHz

f (Hz)
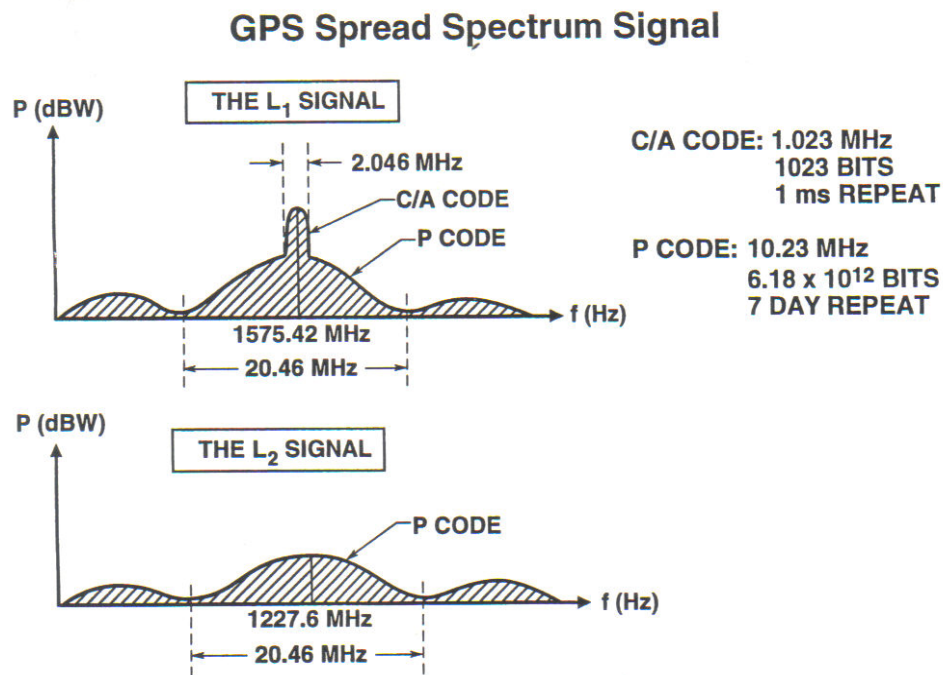
Figure 2.   Characteristics of the L1 and L2 carrier signals (From: [5])

3.   The Ground Segment

A computer driven control segment is necessary to track the satellites because they cannot track their exact orbital location and time. "The control segment consists of a master ground control and four unmanned stations that

track the satellites and transmit corrected orbital parameters. Corrections made by the ground control station reduce clock errors caused by satellite components and signal errors caused by the atmosphere" [6].

In order to determine the position of a vehicle, the distances from the GPS receiver, mounted to the vehicle, to the four or more satellites must be calculated by measuring the difference between the time that the signal left the satellite and the time that it arrives at the receiver. The accuracy of GPS navigation depends on the type of receiver used. "GPS offers two services: (1) a civilian code, the standard positioning service (SPS) which is provided at no cost to civilian and commercial users worldwide with an accuracy level of 100 meters. (2) a military code, the precise positioning service (PPS) that can used only by U.S. military and its allies, a select number of authorized users at the accuracy level of 16 meters" [5]. The users of the SPS cannot use the precise accuracy of the GPS due to the process called Selective Availability (SA). "SA is the purposeful inaccuracy in GPS navigation, accomplished by intentionally varying the precise time of the clocks on board the satellites which causes errors in the GPS signal that limits world-wide users to 100 meter horizontal accuracy with a 95% confidence level" [4],[5]. "PPS receivers with appropriate encryption keys can eliminate the effect of SA" [5].

Other than selective availability, there are several errors affecting the accuracy of GPS. Atmospheric error is caused by GPS signal delay while travelling in the Earth's atmosphere. Clock and ephemeris error are small amount of errors in time sent since GPS satellite can cause a certain amount of inaccuracy in determining a receiver's position. Multipath errors are caused due to GPS signals reflections from surfaces such as building before reaching the receiver. Receiver errors are the errors caused by the noises that occur in receivers and they can be reduced by averaging over a short time [5]. Table 1 shows GPS positioning errors.

Error Source	Range Error Magnitude (meters)	
	SPS	PPS
Selective Availability	24.0	0.0
Atmospheric Delay	7.0	0.7
Clock and Ephemeris	3.6	3.6
Multipath	1.2	1.8
Receiver noise	0.6	0.6
Total User Equivalent Range Error	25.3	4.1
Typical Horizontal DOP	2.0	2.0
Total Stand-Alone Horizontal Accuracy	101.2	16.4

Table 1.   GPS Positioning Errors (From: [5])

In order to improve the accuracy of the basic GPS, many techniques have been used. Other systems can be found in the National Research Council, *The Global Positioning System*, National Academy Press, Washington, D.C. 1995. The Differential GPS (DGPS) is the most widely used method that has a receiver at a reference station, allowing the receiver to compare its real position with its GPS position. The differences are used to compute corrections to the GPS parameters then these corrections are broadcast to DGPS capable receivers [4],[5].

C.   INERTIAL NAVIGATION

Inertial navigation is a simple, self-contained form of navigation that uses magnetometers, rate gyroscopes and accelerometers to determine the position of a vehicle relative to a reference point without using any external navigation signals. An inertial navigation system (INS) measures the accelerations in x, y, z

axes, integrates accelerations over time to obtain instantaneous velocities in three orthogonal axes, and then integrates the velocity to estimate the displacement of the vehicle or position of the vehicle in 3-D [4].

Inertial navigational systems mainly consist of two parts; (1) an inertial measurement unit (IMU), which contains accelerometers (one per axis) and gyroscopes, (2) navigation computers that measure the gravitational acceleration to determine attitude of the vehicle [8].

Gyroscopes measure the change in the direction of the robot's movement; in other words, they measure the angular velocity of the robot in the robot's reference frame. A navigation computer integrates the angular velocity to determine the change in the robot's attitude. Using the initial orientation of the robot as an initial condition, the computer can estimate the orientation of the robot in the robot's reference frame [15].

Accelerometers measure the linear acceleration of the robot in the robot's reference frame. In order to determine the change in velocity and position of the robot, an integration process is applied to the acceleration data measured in X, Y and Z axes. By using the initial position and the velocity of the robot in 3-D, the current position and the instantaneous velocity of the robot can be known at any time through its track to the target area.

Types of inertial navigational systems are mainly discussed in two categories: gimbaled and strapdown. In a gimballing inertial system, three orthogonal accelerometers are mounted on the inner gimbal to isolate the inside of the frame from external rotations. In a strapdown inertial system, the three mutually orthogonal accelerometers are mounted directly parallel to the body of the vehicle where they can continuously measure the changes in vehicle's attitude [4]. "Strapdown systems are simpler and smaller compared to gimbaled systems, which make them more suitable for robots' applications" [4].

Being small, self-contained, compact and survivable are some of the advantages that inertial navigational systems provide. Characteristic features of

the INS make it more survivable and difficult to destroy compared to radio navigation systems [4]. Besides its advantages, INS has some disadvantages and the primary one is that its positioning errors tend to accumulate over time since it is not using any external aids to update itself periodically. For short periods, it can be used for navigation of autonomous vehicles by itself; however, it needs to be integrated with a radio-navigation system like Transit or GPS for longer periods of navigation, which is known as integrated navigation systems. This thesis characterizes the MEMS Crossbow accelerometer as a mechanism for robotic navigation system for GPS backup.

D.   INTEGRATED NAVIGATION

The most common type of the integrated navigation systems is the one that uses an inertial navigation unit with a GPS receiver. Since each of them have different advantages and drawbacks, it can be thought that they complete with each other, when used together. As mentioned before, one of the main drawbacks of the INS is the error the system tends to accumulate over time. INS needs to be aligned periodically to mute the error by using external navigation signals such as GPS. In other words, INS can be used for short-term navigation. The period of the navigation depends on the level of accuracy needed. The longer INS is used alone as a navigation system, the higher error there is since position errors degrade over time. GPS position errors are independent of the time GPS is used alone as a navigation system. Thus, the period of GPS usage for the robot's positioning system does not affect the accuracy of the navigation. However, INS has less errors than GPS for short-term navigation. The integration of the GPS receiver and INS could give the optimum result for short and long-term navigation [8].

E.   NOISE

Since the purpose of this thesis is to characterize the performance of the accelerometer for use as a dead reckoning sensor, it was realized early on that it was important to develop a technique to handle sensor noise in the measured data. See Figure 3.
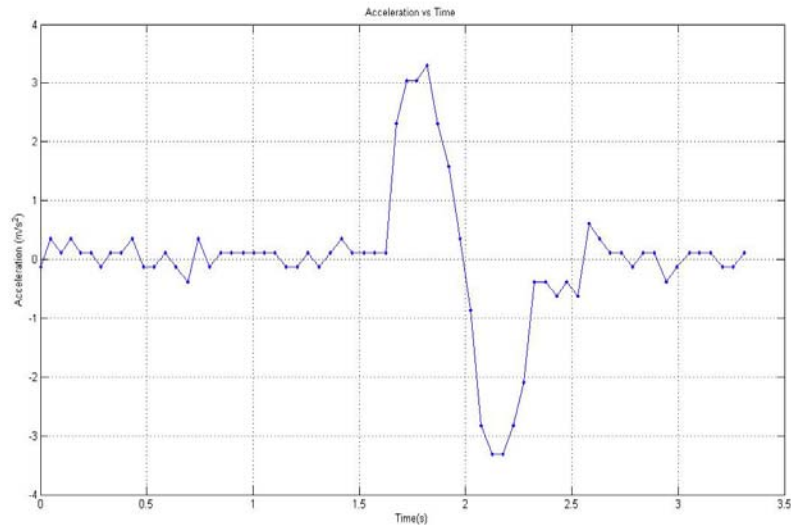
Figure 3.   Example of noisy data in time domain

Examining Figure 3, it is apparent that the higher frequencies need to be filtered. Therefore, the signals are transformed by FFT to the frequency domain. This is done in MATLAB. See Figure 4.
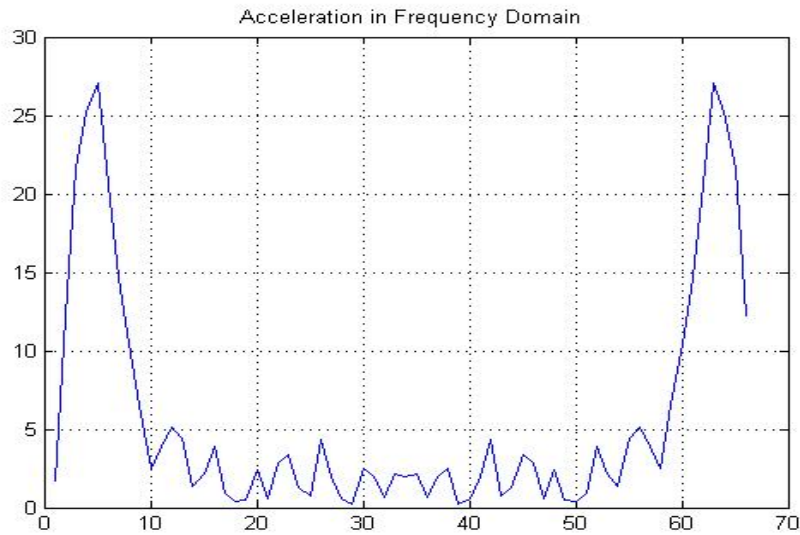
Figure 4.   Acceleration data in frequency domain

It was determined that the signal for all data collections was under 10hz. Therefore, a low pass filter applied to that data was used to clean up the signal. Figures 5 and 6 show the filtered frequency domain and the final filtered signal, respectively. This technique was used for all data collection in the experiment.
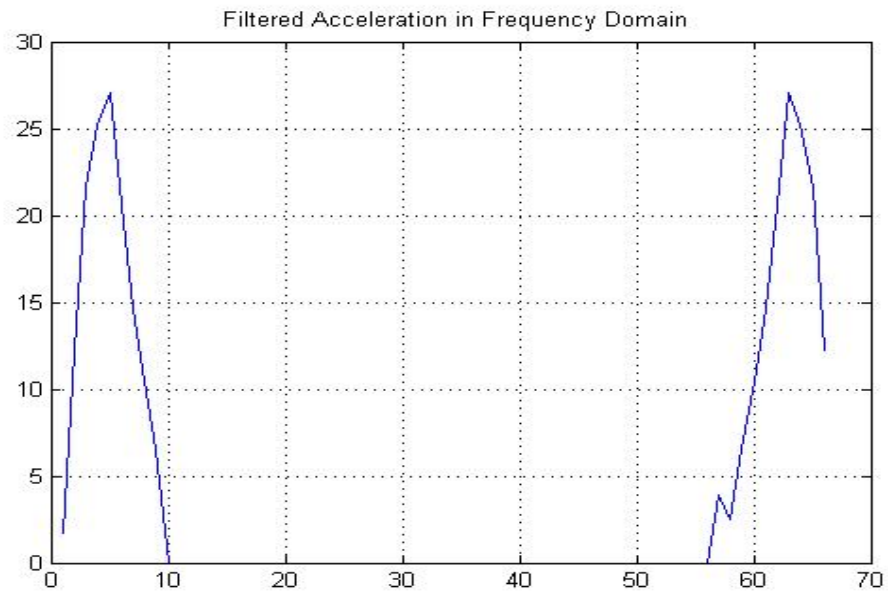
Figure 5.   Filtered data in frequency domain
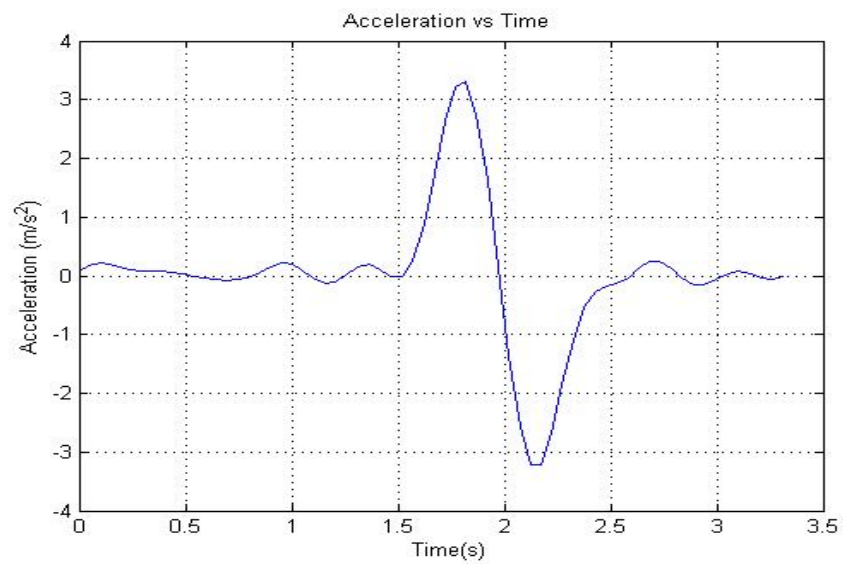
Figure 6.   Filtered acceleration data

15

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III. EXPERIMENTAL SETUP

A. INTRODUCTION

Figure 7 shows the experimental setup. It consists of a MEMS Crossbow accelerometer, a BL2000 Microprocessor, a computer that runs the Dynamic C program and the straight and curved tracks used for the experiments in 1-D and 2-D. The functions and features of each element will be discussed in detail later in this chapter.

B. DATA COLLECTION

Data collection was a fairly straightforward process. A program was written in the development environment for Dynamic C on the laptop computer. This program is then compiled and loaded via the RS-232 connection to the BL2000 microprocessor. The BL2000 runs the program in RAM and monitors the 3 analog inputs from the Crossbow Accelerometer. These analog voltages, representing accelerations in X, Y, and Z, are then converted to digital numbers by a 12 bit conversion, formatted, and sent to the laptop for storage and analysis.
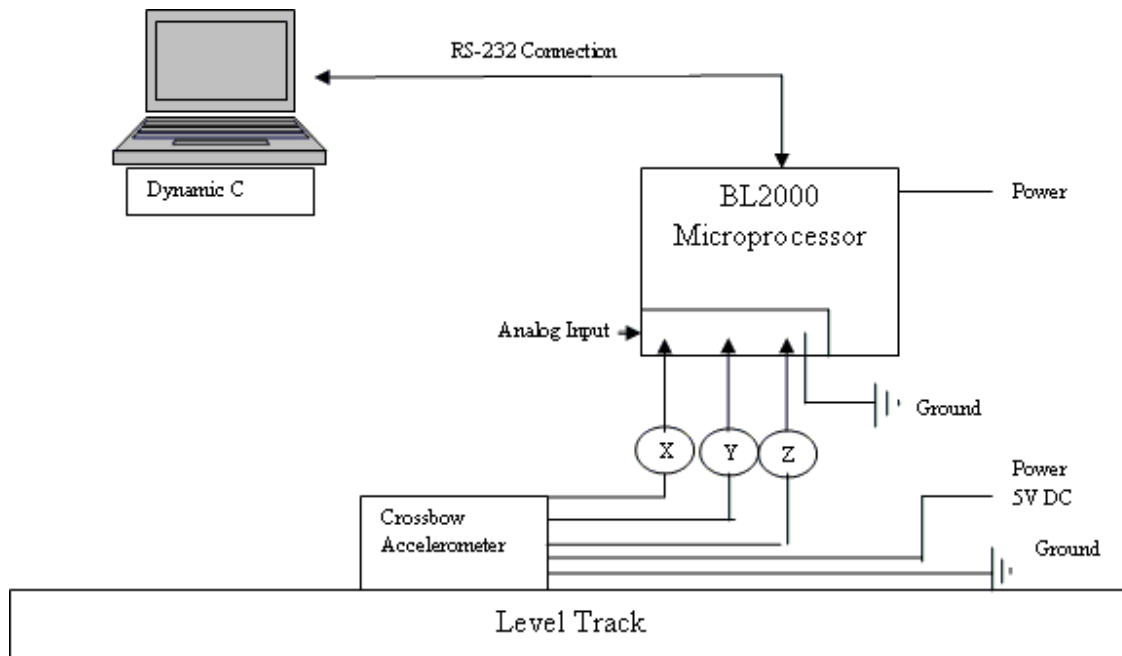
Figure 7.   System layout

C. HARDWARE

1. BL2000 Microcontroller

a. Overview

The BL2000, shown in Figure 8, is an advanced single-board computer that incorporates a Rabbit 2000 microprocessor, operating at 22.1 MHz, 128K static RAM and 256K flash memory, 28 digital I/O ports, nine 12-bit A/D converter inputs, two 12-bit D/A converter inputs, a SPDT relay output, and a 10Base-T Ethernet port.
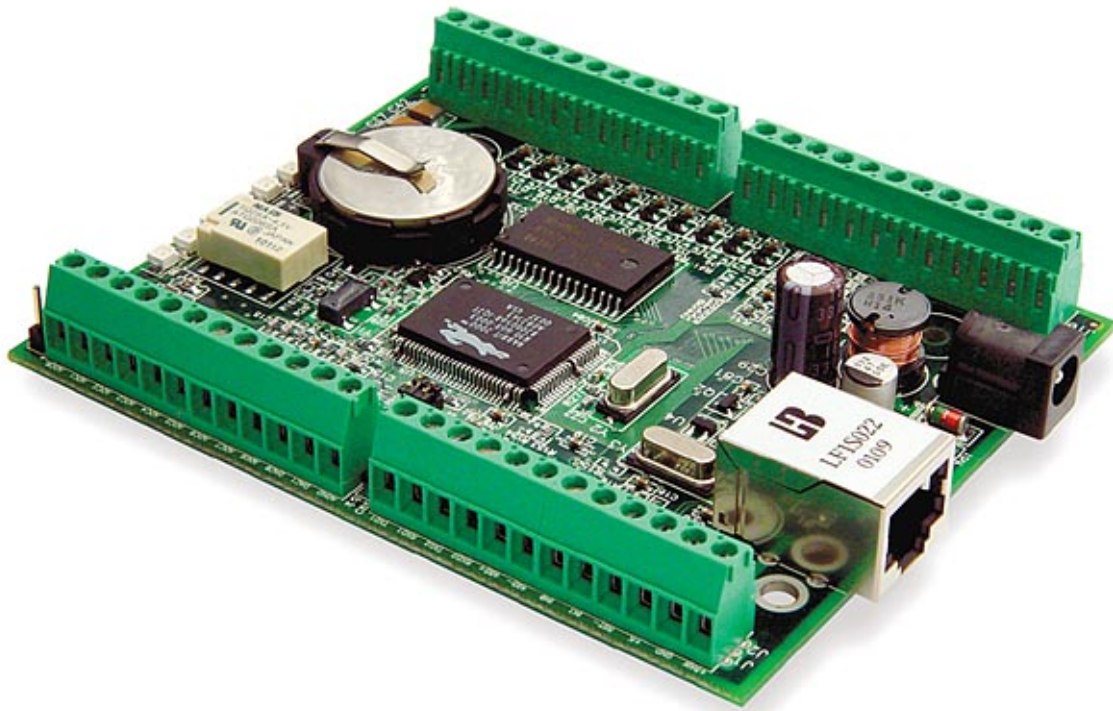
Figure 8.   BL2000 Microprocessor (From: [14])

b. Specifications

Electrical, mechanical and environmental specifications for BL2000 are taken from [13].
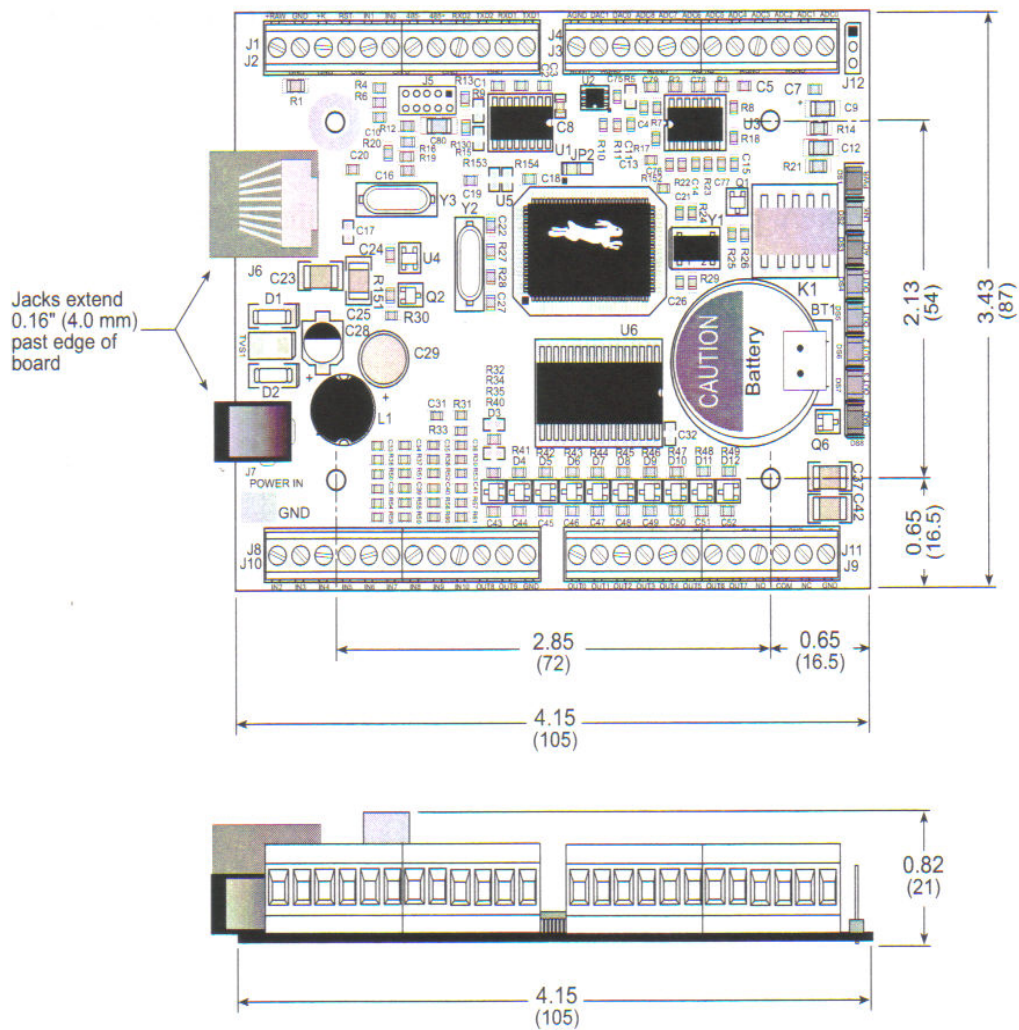
Figure 9.   The dimensions of BL2000 (From :[13])

Parameter	Specification
Board Size	3.43" × 4.15" × 0.82" (87 mm × 105 mm × 21 mm)
Connectors	one RJ-45 (Ethernet) one 2 × 5, 2 mm pitch (serial programming port) one power jack for AC adpater four 12-terminal screw connectors (18 to 26 AWG wire) for analog and digital I/O, relay
Ethernet Interface	Direct connection to 10Base-T Ethernet networks via RJ-45 connection
Temperature	−40°C to +70°C
Humidity	5% to 95%, noncondensing
External Input Voltage	9 V to 40 V DC or 22 V to 26 V AC
Power Consumption	1.5 W maximum
Onboard Voltage Regulator	Surface-mount switching regulator sources 5 V at up to 1 A

Digital I/O	Up to 28 digital I/O:
	  11 inputs: hardware-configurable pull-up or pull-down, ± 36 V DC, switching threshold 2.4 V typical
	  up to 7 dual-purpose unbuffered analog inputs that may be software-configured for use as digital inputs, 0 V to 48 V DC, switch threhold may be set in software
	  10 outputs: sinking or sourcing, +40 V DC, 200 mA maximum per channel

Analog Inputs	Four 12-bit A/D converter inputs, ± 10 V DC, 1 MΩ input impedance Five 12-bit dual-purposeA/D converter inputs, 0 V to 48 V DC, 12 kΩ input impedance Two additional 12-bit dual-purpose A/D converter inputs, 0 V to 48 V DC, 12 kΩ input impedance (BL2010 and BL2030)
Analog Outputs (BL2000 and BL2020)	Two 12-bit D/A converter outputs, 0 V to 4.000 V DC, 1 mA max.

Relay Output	SPDT (N.O., N.C., COM) with snubbers:
	  1 A @ 30 V DC, 300 mA @ 120 V AC
	  max. contact settling time 4 ms

Microprocessor	Rabbit 2000™
Clock	22.1 MHz
SRAM	128K, surface mount
Flash EPROM	256K, surface mount

Figure 10.   The specifications of BL2000 (From: [13])

Parameter	Specification
Timers	Five 8-bit timers, one 10-bit timer with two match registers, five timers are cascadable
Serial Ports	4 serial ports: • two RS-232 or one RS-232 (with CTS/RTS) • one RS-485, onboard network termination and bias resistors • one 5 V CMOS-compatible programming port
Serial Rate	Maximum standard asynchronous 230,400 bps
Watchdog/Supervisor	Yes
Time/Date Clock	Yes
Backup Battery	Yes: 3 V lithium coin type, 950 mA·h standard solder-in; optional 3 V, 160 mA·h, for battery using onboard battery holder; external battery connecor

Figure 11.   The specifications of BL2000 (From: [13])

2.   Crossbow MEMS Accelerometer

a.   Overview

The Crossbow LP Series accelerometer, as seen in Figure 12, is a general purpose, low cost, linear acceleration and/or vibration sensor. The accelerometer used in this research is CXL10LP3-P, which can measure acceleration in three orthogonal axes up to ± 10 g and operates on a single +5 VDC power supply. The sensing element of the accelerometer is a silicon micro-machined capacitive beam, which provides direct high-level analog voltage output that requires no external signal conditioning. The output voltage is typically 2.5 V for zero g with $\pm$ 2.0 V output span. Sensitivity is 200+-10 mV/g. More information about the accelerometer can be found in the specifications section.

Figure 12.   Crossbow CXL10LP3-P accelerometer

The Crossbow CXL10LP3-P accelerometer provides acceptable performance when compared to some of the more expensive piezoelectric and piezoresistive accelerometers.

b.   *Specifications*

Specifications are taken from the datasheet provided with the accelerometer.

Specifications	CXL04LP1 CXL04LP1Z CXL04LP3	CXL10LP1 CXL10LP1Z CXL10LP3	CXL25LP1 CXL25LP1Z CXL25LP3	Remarks
Performance				
Input Range (g)	± 4	± 10	± 25	± 5%
Zero g Drift (g)	± 0.2	± 0.5	± 0.5	0°C to 70°C
Sensitivity (mV/g)	500 ± 25	200 ± 10	80 ± 4	
Transverse Sensitivity (% Span)	± 5	± 5	± 5	
Non-Linearity (% FS)	± 0.2	± 0.2	± 0.2	typical
Alignment Error (deg)	± 2	± 2	± 2	typical
Noise (mg rms)	10	10	10	typical
Bandwidth (Hz)	DC -100	DC -100	DC -100	
Environment				
Operating Temp. Range (°C)	-40 to +85	-40 to +85	-40 to +85	
Shock (g)	2000	2000	2000	
Electrical				
Supply Voltage (Volts)	+ 5.0	+ 5.0	+ 5.0	
Supply Voltage -R option (VDC)	+ 8.0 to 30	+ 8.0 to 30	+ 8.0 to 30	
Supply Current (mA)	5/axis	5/axis	5/axis	typical
Zero g Output (Volts)	+ 2.5 ± 0.1	+ 2.5 ± 0.1	+ 2.5 ± 0.1	@25°C
Span Output (Volts)	± 2.0 ± 0.1	± 2.0 ± 0.1	± 2.0 ± 0.1	
Output Loading	> 10 kΩ, < 1 nF	> 10 kΩ, < 1 nF	> 10 kΩ, < 1 nF	
Physical				
Standard package				
Size (in)	0.78 x 1.75 x 1.07	0.78 x 1.75 x 1.07	0.78 x 1.75 x 1.07	
(cm)	1.98 x 4.45 x 2.72	1.98 x 4.45 x 2.72	1.98 x 4.45 x 2.72	
Weight	1.62 oz (46 gm)	1.62 oz (46 gm)	1.62 oz (46 gm)	
Aluminum package				
Size (in)	0.95 x 2.00 x 1.20	0.95 x 2.00 x 1.20	0.95 x 2.00 x 1.20	
(cm)	2.41 x 5.08 x 3.05	2.41 x 5.08 x 3.05	2.41 x 5.08 x 3.05	
Weight	2.40 oz (68 gm)	2.40 oz (68 gm)	2.40 oz (68 gm)	

Notes

Pin	Color	Function
1	Red	Power In
2	Black	Ground
3	White	X-axis Out
4	Yellow	Y-axis Out
5	Green	Z-axis Out

Pin Diagram

Figure 13.   The specifications of Crossbow MEMS accelerometer

D.   SYSTEM SETUP

Having installed the Dynamic C version 7.04 to the PC, the BL2000 microprocessor is connected to the PC via a 10-pin programming cable, as seen in Figure 14. The other end of the programming cable is connected to a COM port on the PC. The microprocessor can download programs from the PC and debug the BL2000 through a programming cable. The DC end of the power supply is plugged into jack J7 as seen in Figure 14.
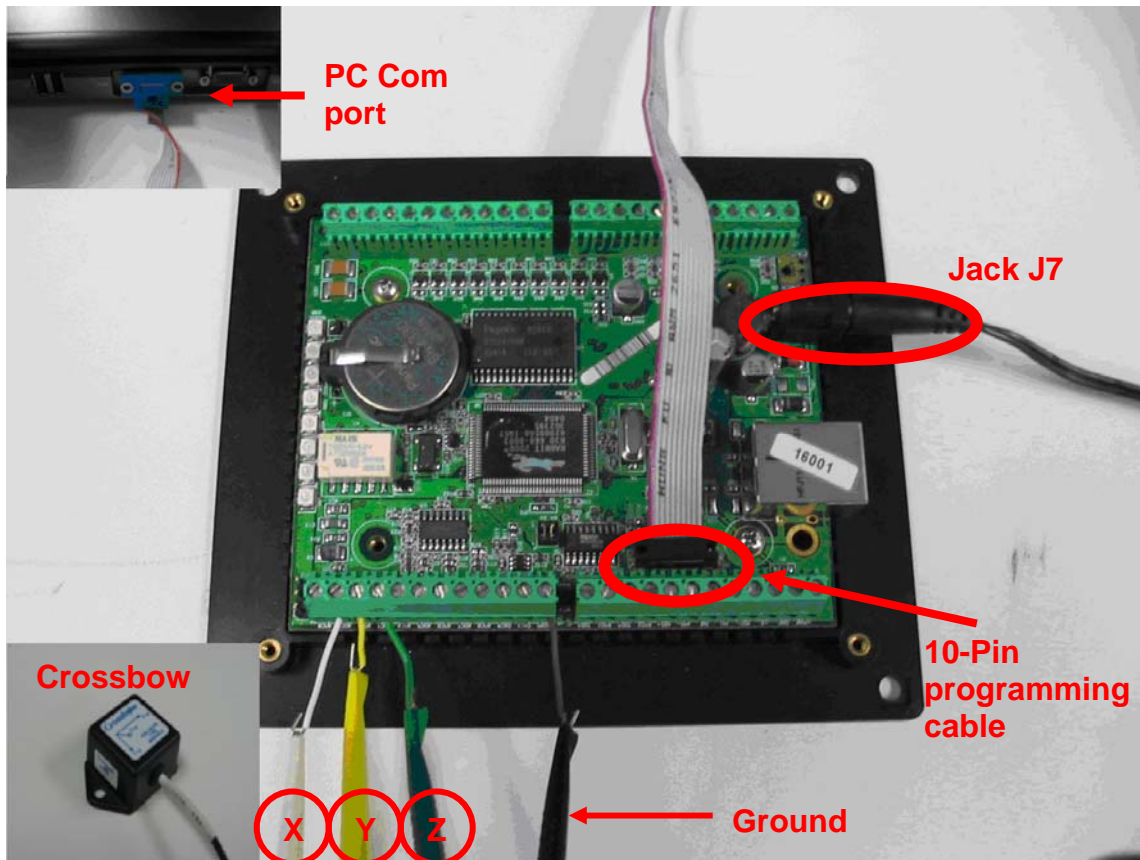
Figure 14.   Connecting BL2000 to PC (Picture taken on October 14, 2008)

Using the pin diagram from Figure 13, the Crossbow MEMS accelerometer is connected to the BL2000 microprocessor. The white, yellow and green cables, as shown in Figure 14, are X, Y and Z axis outputs connected to the serial port on the BL2000 microprocessor. The red and black cables from accelerometer are connected to +5V DC and ground, respectively.

The C-code program is used for reading the digital voltage outputs from BL2000 via the Dynamic C version 7.04. The output of the program gives the instantaneous accelerations in three axes in voltage and in SI units (m/s^2) in ASCII format. C-code can be found in Appendix A. See Table 2 for an example of the output to a data collection set.

Time	Accel(X)		Accel(Y)		Accel(Z)	
(second)	(Volt)	(m/s^2)	(Volt)	(m/s^2)	(Volt)	(m/s^2)
0.0000	2.0800	0.1297	1.8284	0.0951	2.1608	-0.2355
0.0470	2.0700	-0.3596	1.8234	-0.1486	2.1608	-0.2355
0.0970	2.0750	-0.1149	1.8234	-0.1486	2.1658	0.0098
0.1430	2.0700	-0.3596	1.8284	0.0951	2.1658	0.0098
0.1900	2.0750	-0.1149	1.8284	0.0951	2.1658	0.0098
0.2370	2.0750	-0.1149	1.8284	0.0951	2.1658	0.0098
0.2840	2.0800	0.1297	1.8284	0.0951	2.1658	0.0098
0.3310	2.0750	-0.1149	1.8284	0.0951	2.1658	0.0098

Table 2.   Sample data output from the C-program

Matlab was used to calculate the displacement, from the measured acceleration using the Euler method. This code can be found in Appendix B.

In order to verify the Matlab code, the code was run for constant acceleration for a limited time to calculate the instantaneous velocity and distance by using the equations for velocity and distance;

$$V = V_0 + at;$$
$$X = X_0 + V_0 t + \frac{1}{2} at^2 \quad (1)$$

where: a: acceleration, t: time and Vo: Initial velocity, Xo: Initial distance.

Xo and Vo are assumed to be zero.

The Matlab code was run for a constant acceleration (2 m/s^2) for a period of 16 seconds to calculate instantaneous velocity and displacement by using equations(1) mentioned above. Two lines were added to the code for acceleration and time entry;

a=[2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2];

t=[0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16].

Figures 15-17 show the results.
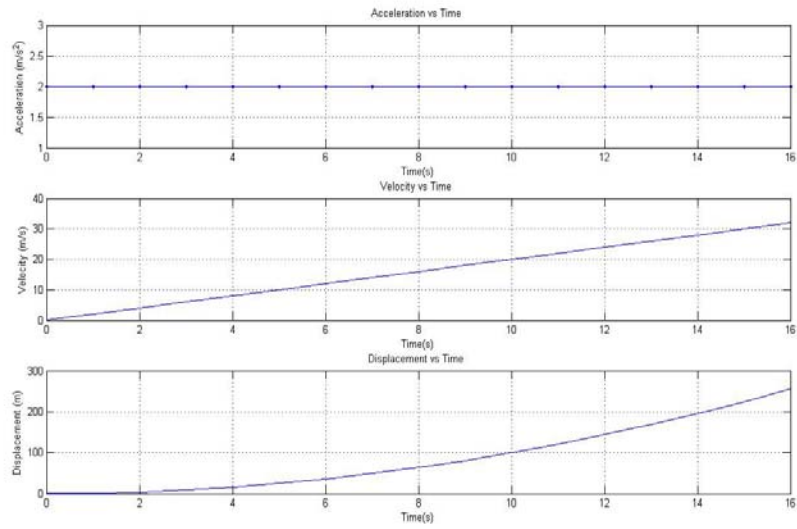
Figure 15.   Acceleration data, velocity and displacement (a=2m/s^2 and t=16s)
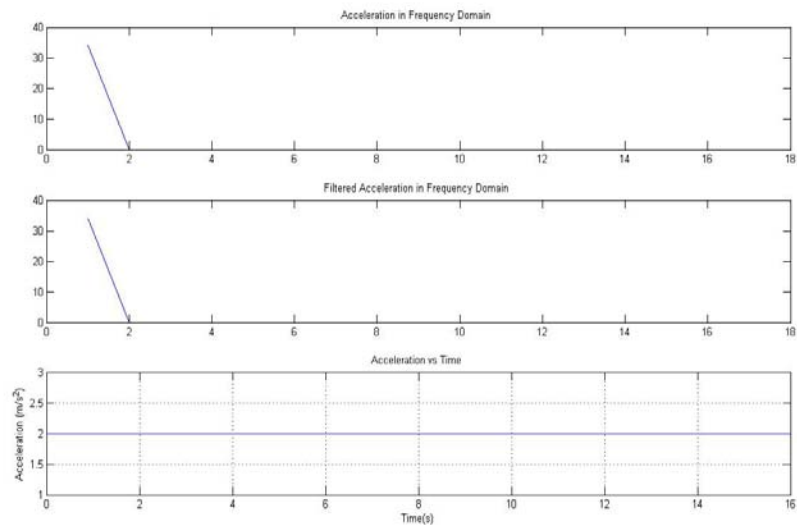
Figure 16.   Acceleration data in frequency domain and low pass filter (a=2m/s^2 and t=16s)
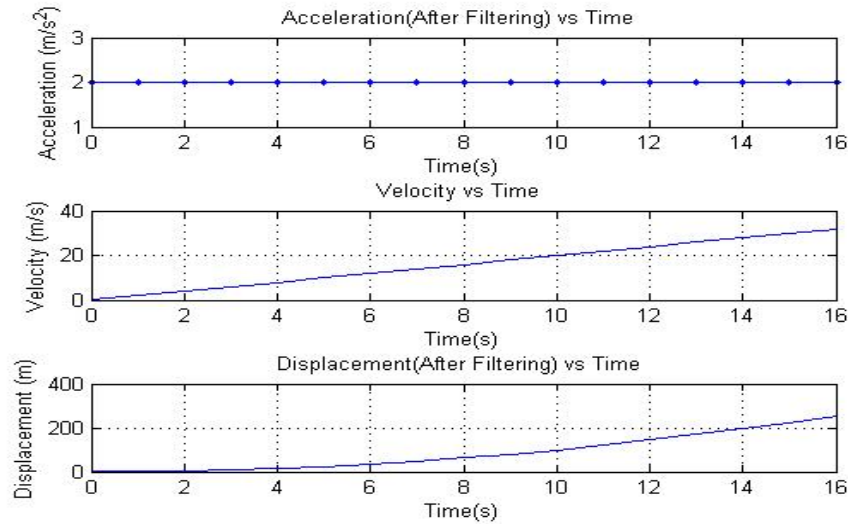
Figure 17.   Filtered acceleration data, velocity and displacement (a=2m/s^2 and t=16s)

For example, at the 10th second, the instantaneous velocity can be calculated as 20m/s using the velocity equation.

$$V = V_0 + at;$$ V= (2m/s).(10s)=20m/s,

and displacement can be calculated as 100m.

$$X = X_0 + V_0 t + \frac{1}{2}at^2;$$ X=1/2.(2m/s).(10s)^2=100m.

For the 14th second, velocity as 28m/s and displacement as 196m can be calculated. These results perfectly match the velocity and displacement results from the Matlab plots above.

As previously mentioned, a low pass filter was used to filter noise. In the first plot, as shown in Figure 18, the instantaneous acceleration, velocity and displacement can be seen.

27
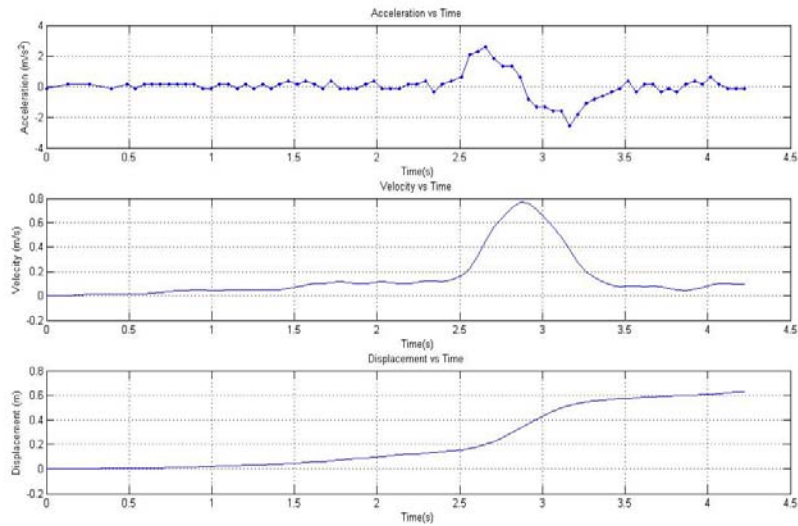
Figure 18.   Unfiltered acceleration data, velocity and displacement

In the second plot, as seen in Figure 19, data in the frequency domain and low pass filter can be seen. Filtered data can be seen in the third plot. See Figure 20. The filtering procedure, plots and evaluation of the data will be discussed in detail in Chapter IV.
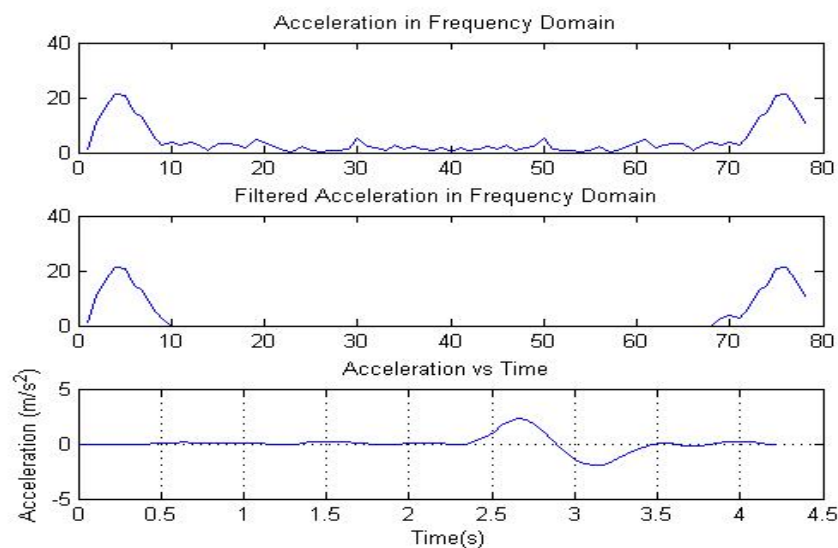
Figure 19.   Acceleration data in frequency domain and low pass filter
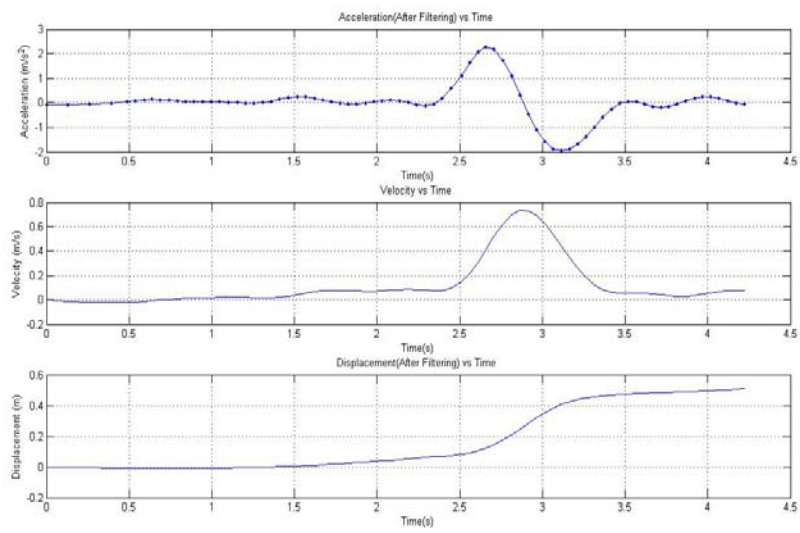
Figure 20.　　Filtered acceleration, velocity and displacement

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IV.   TEST AND EVALUATION

A.   STATIONARY ACCELERATION APPLICATION

The first test run of the Crossbow CXL10LP3-R accelerometer was executed while there was no movement in 3-D. A bubble level was used to eliminate any tilt in the X-Y plane. See Figures 21 and 22.
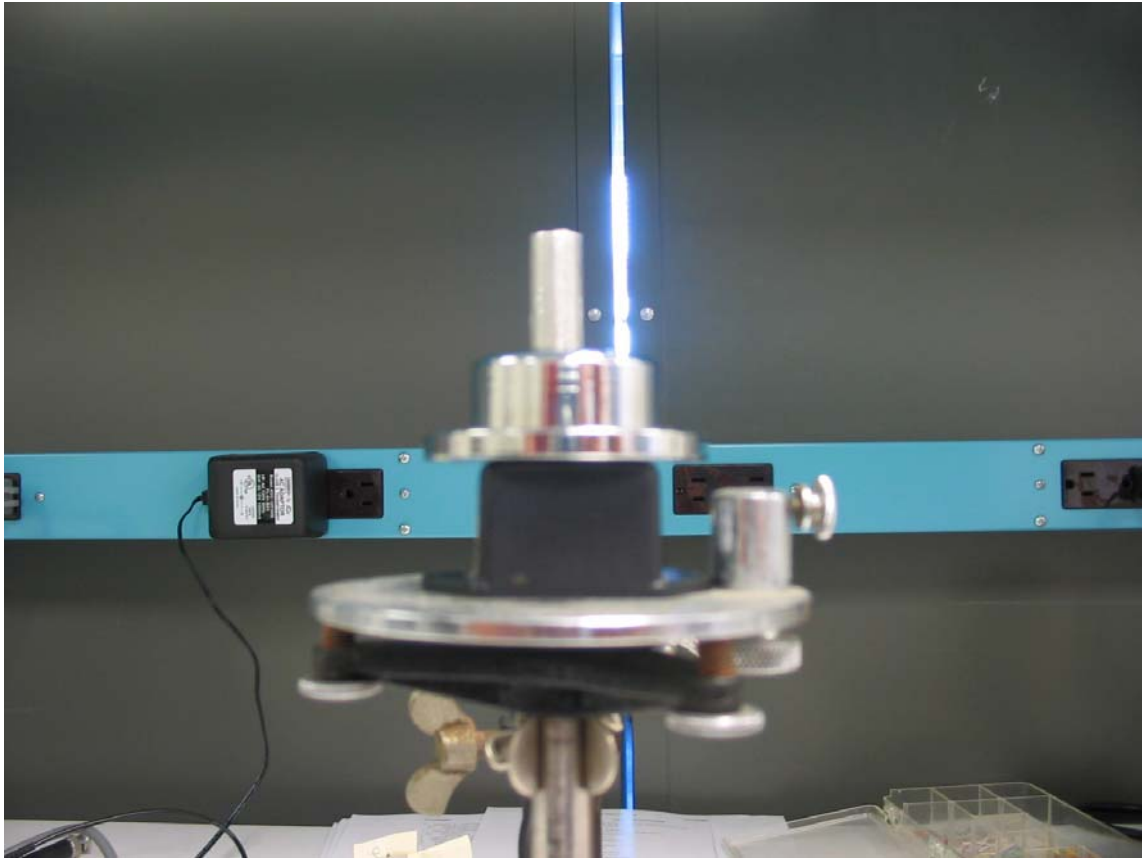
Figure 21.   Crossbow accelerometer mounted on a platform (Picture taken on October 15, 2008)
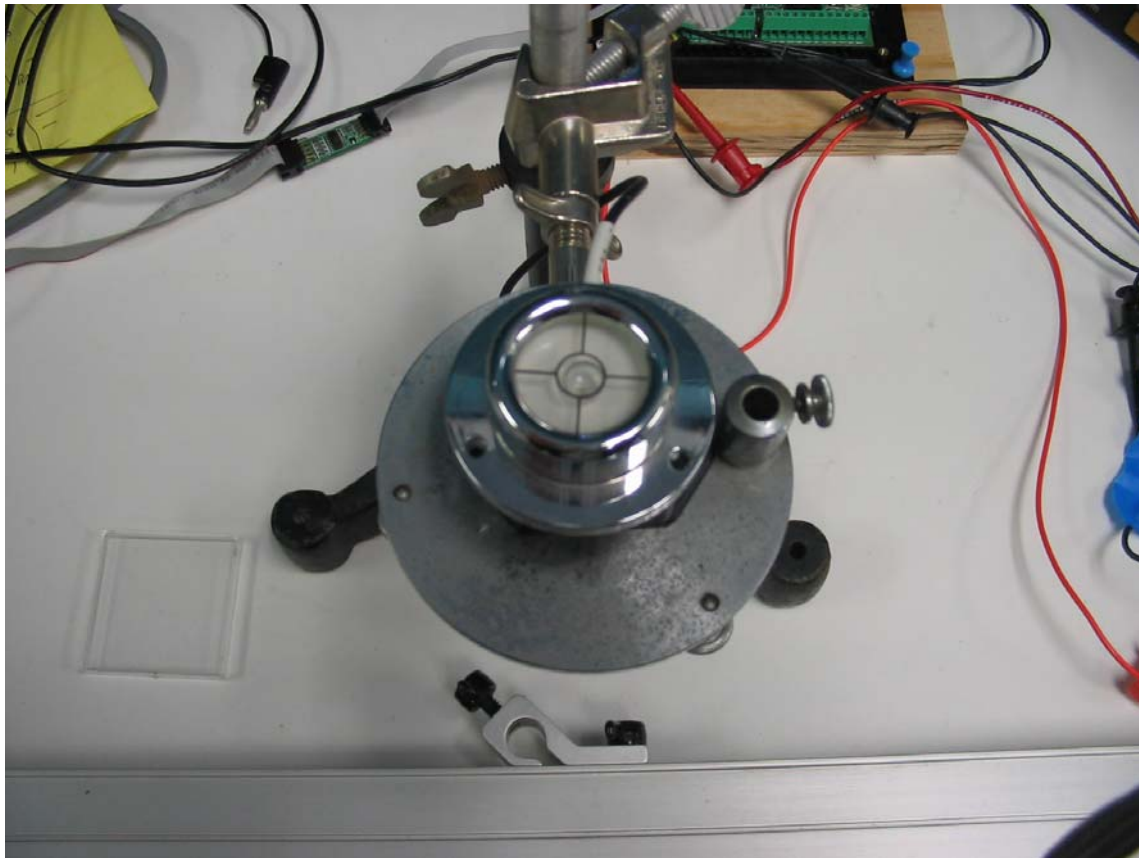
Figure 22.   Crossbow accelerometer leveled with a bubble level (Picture taken on October 15, 2008)

Forty-five seconds of collected data showed too much noise and an unacceptable drift of approximately eight meters in the positive X direction as seen in Figure 23. The data was then filtered as discussed above. Figure 24 shows the FFT of the acceleration, the low pass filter and the cleaned up signal. The low pass filter was set abruptly at 10hz. Figure 25 shows the filtered acceleration and the calculated velocity and displacement. It appears that the noise was handled nicely but the drift was still unacceptable.
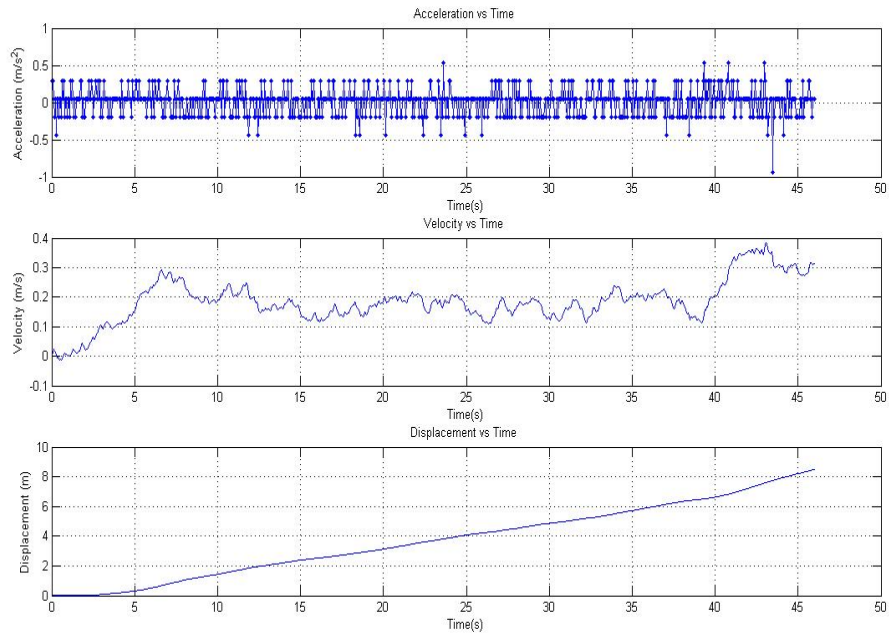
Figure 23.   Acceleration data, velocity and displacement with no movement (Unfiltered)
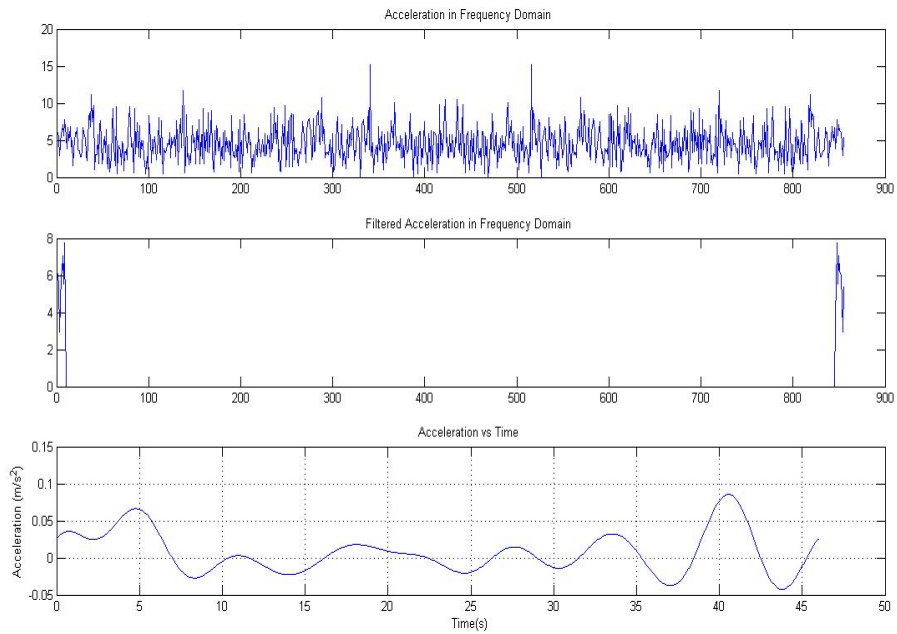
Figure 24.   Acceleration data in frequency domain (Low pass filter)
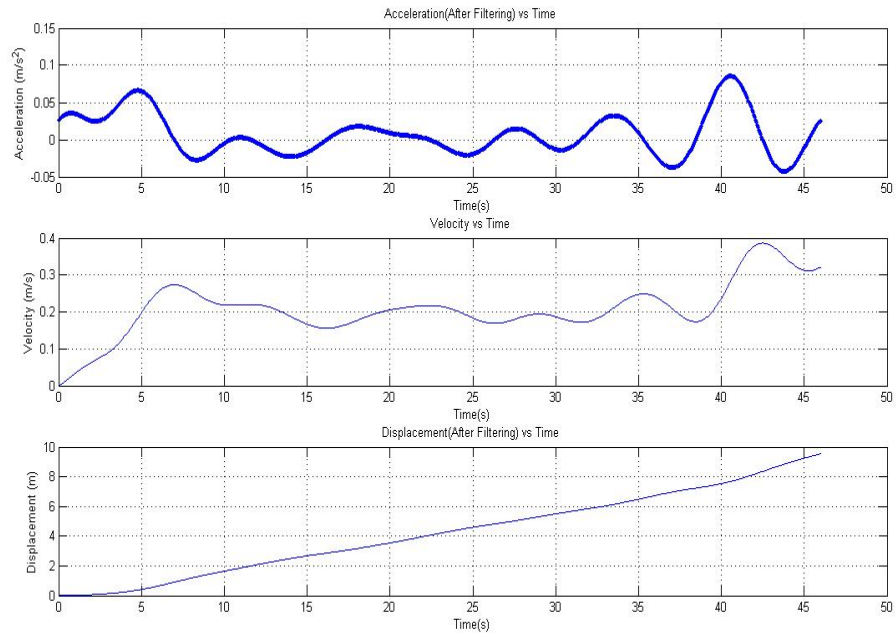
Figure 25.   Acceleration data, velocity and displacement after filtering

Five more data sets where collected in this configuration with the results shown in Figures 26-35. Figures 26-30 show the acceleration data, velocity and displacement sensed in the X-axis. Figures 31-35 show the acceleration data, velocity and the displacement sensed in the Y-axis.
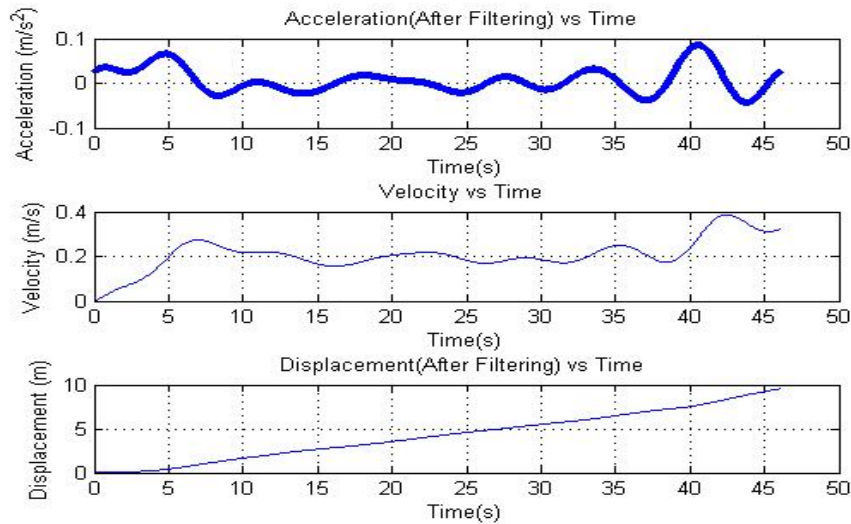
Figure 26.   Stationary data in X-axis (1)

34
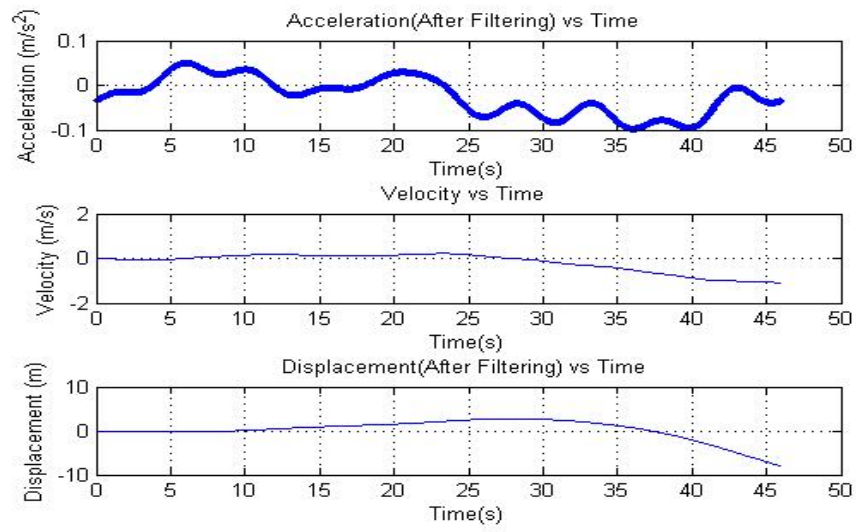
Figure 27.   Stationary data in X-axis (2)
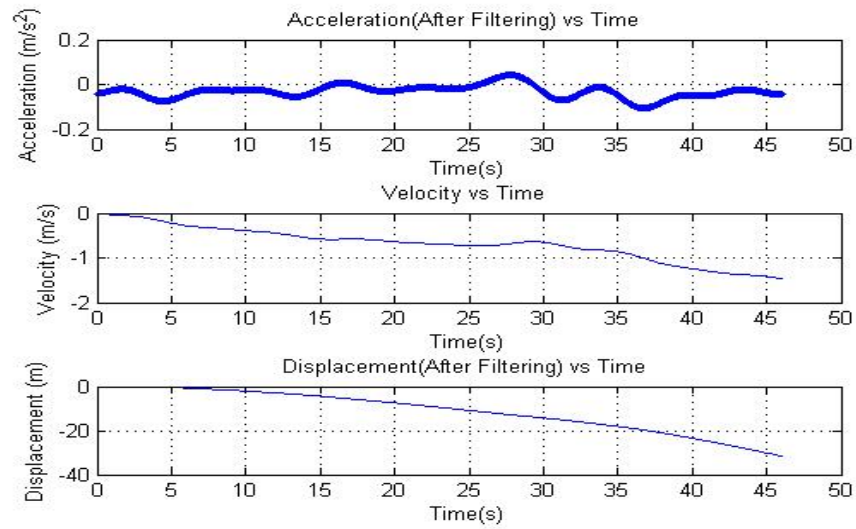
Figure 28.   Stationary data in X-axis (3)
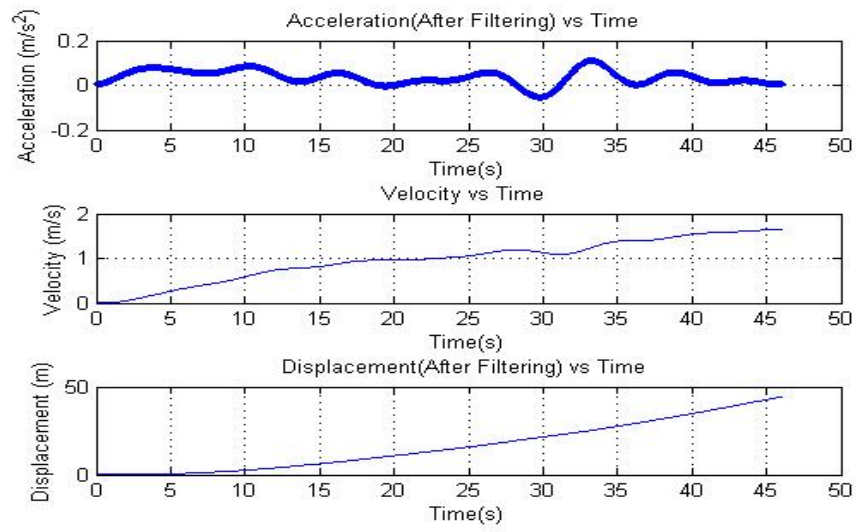
Figure 29.   Stationary data in X-axis (4)
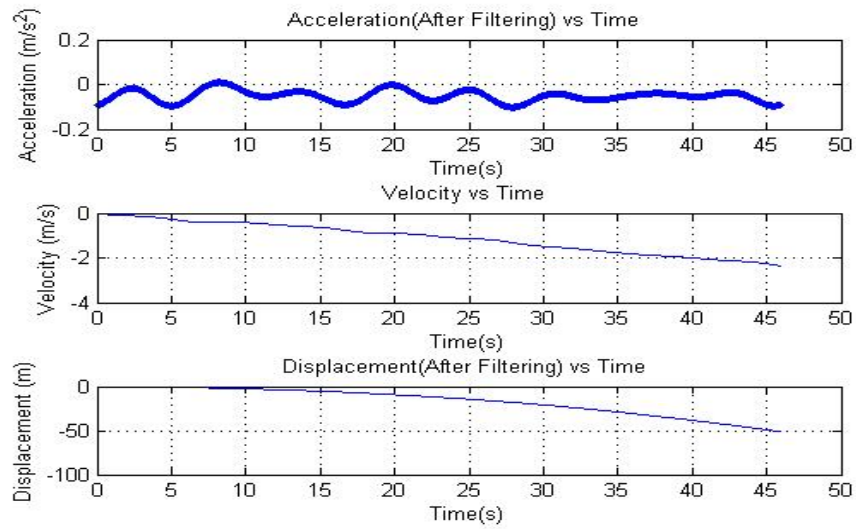
Figure 30.   Stationary data in X-axis (5)
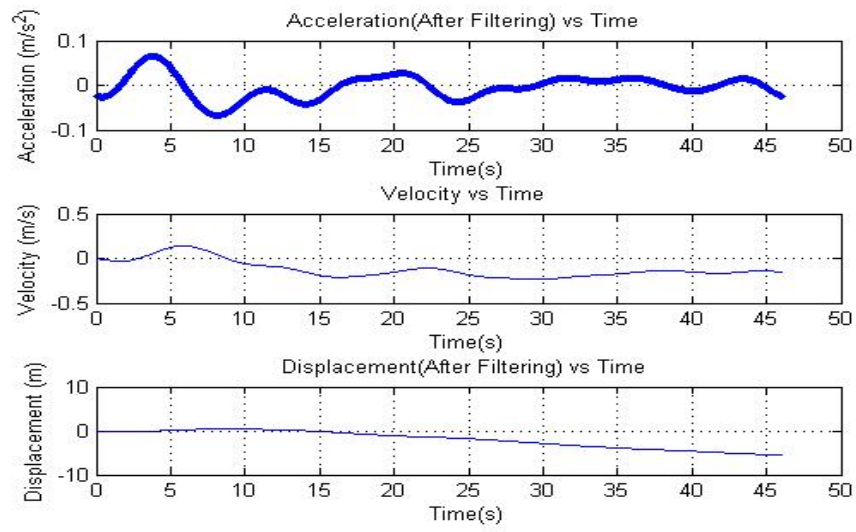
Figure 31.   Stationary data in Y-axis (1)
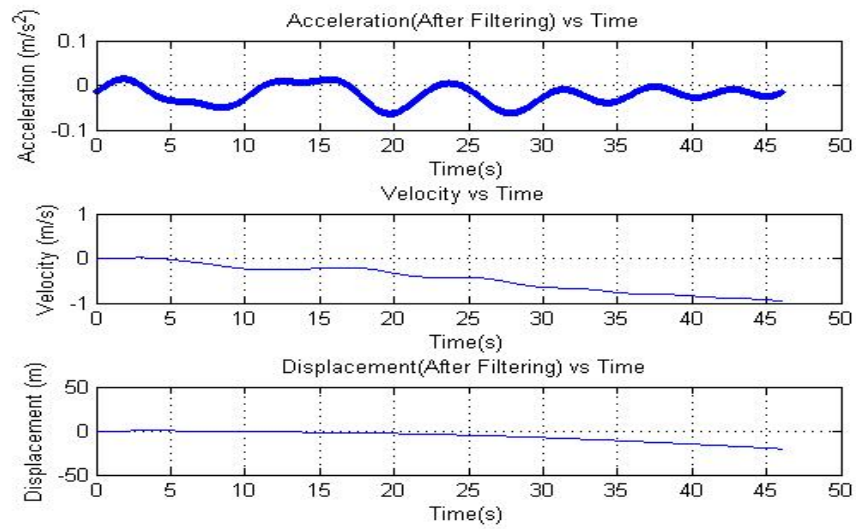
Figure 32.   Stationary data in Y-axis (2)
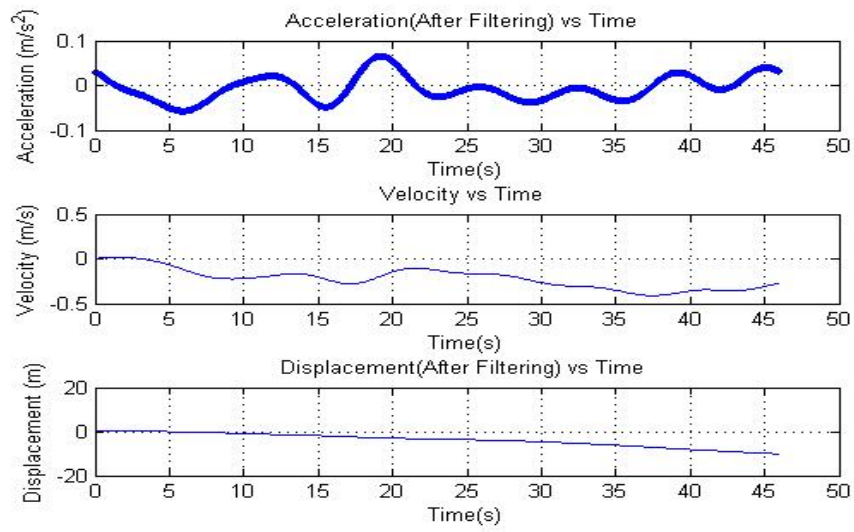
Figure 33.   Stationary data in Y-axis (3)
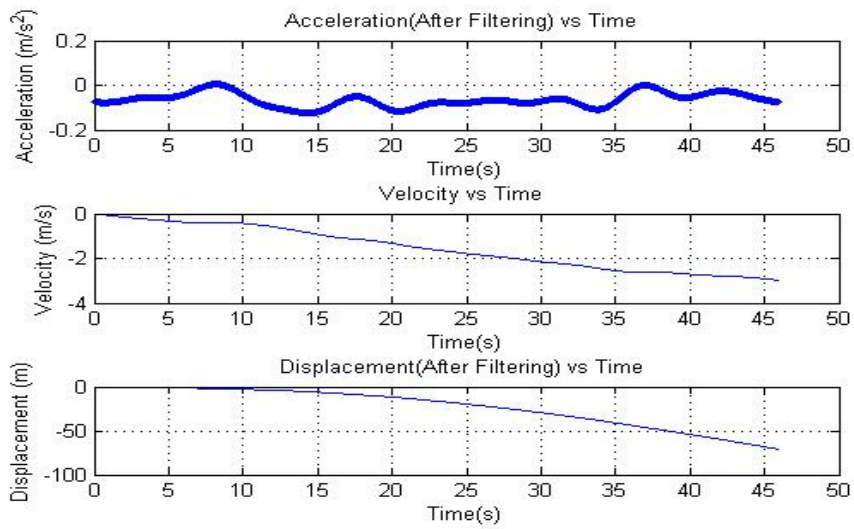
Figure 34.   Stationary data in Y-axis (4)
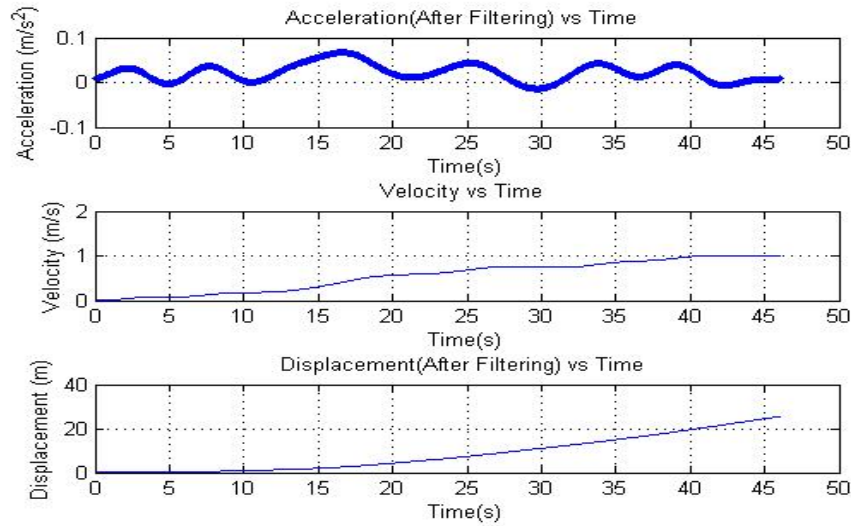
Figure 35.   Stationary data in Y-axis (5)

For the stationary case, according to the data, it can be said that it is possible to rely on the accelerometer only for about the first 5 seconds; after 5 seconds, accelerometer measurements are not reliable due to drift. To make the accelerometer useful in the static case, it would be necessary to have a priori knowledge about its status and ignore the drift when it is known that there is no motion. The acceleration output data can be found in Appendix C.

B.   1-D APPLICATION

For evaluation of the accelerometer in 1-D, ten sets of experiments with different accelerations were conducted in the positive and negative directions of the X and Y axes. The accelerometer was mounted on the rolling cart as seen in Figure 36. The track for the cart was leveled with a digital level in the X-Y plane. Then, the accelerometer was leveled on top of the cart again.
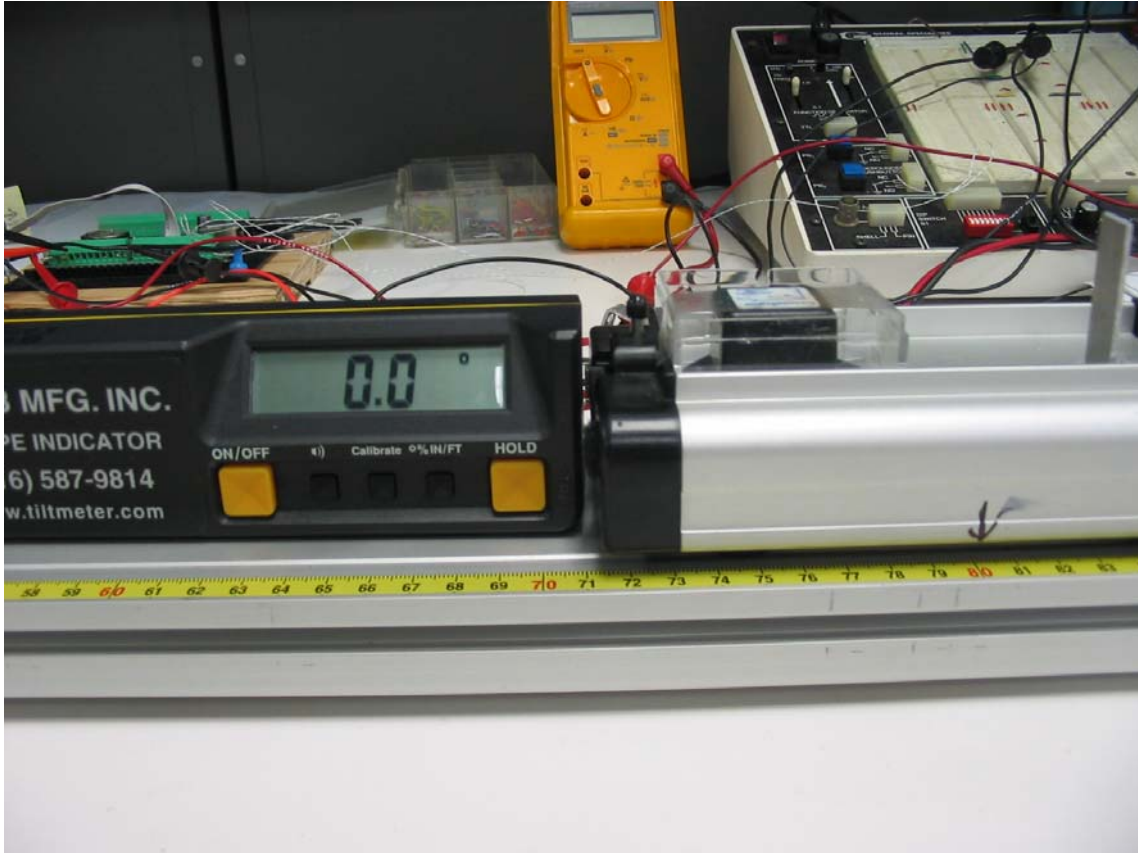
Figure 36.   Leveled path and the rolling cart with accelerometer

Figure 36 shows the leveled path and rolling cart with the accelerometer. The accelerometer was moved in positive and negative directions of the X-axis for a distance of 40 cm for ten times, five times in each direction with different accelerations. Figures 37-41 show the acceleration data, velocity and displacement in the positive direction of the X-axis for a distance of 40 cm.
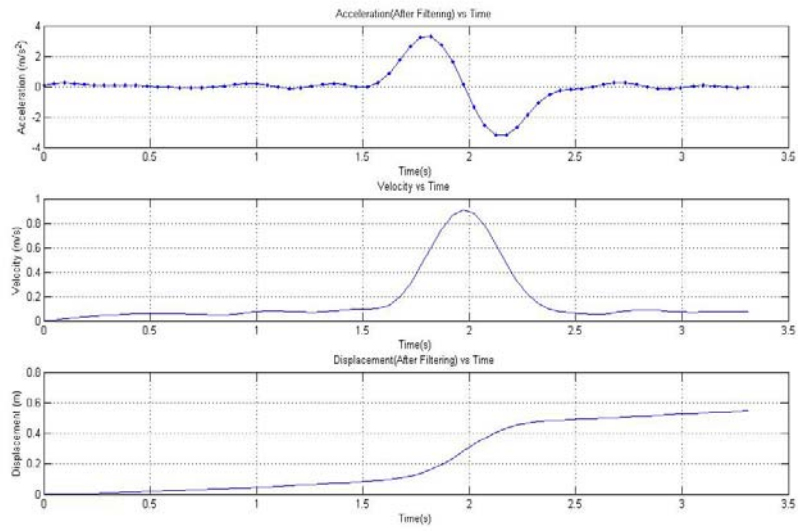
Figure 37.   Acceleration data in positive X-axis (1)
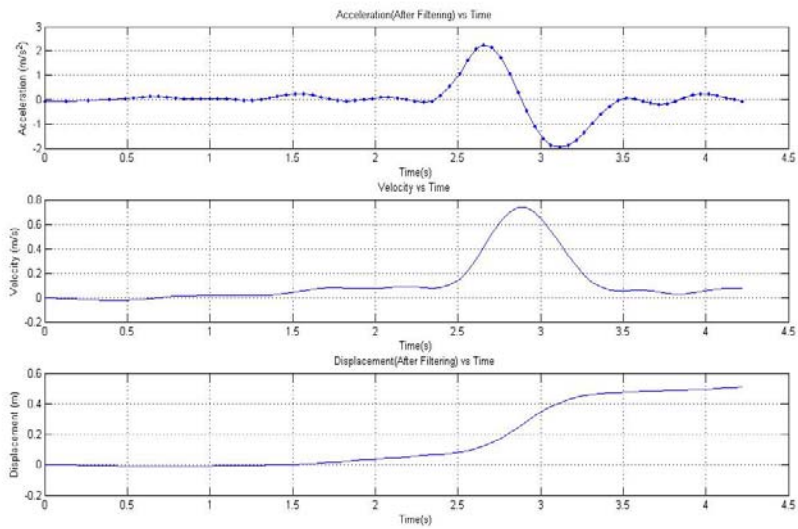
Figure 38.   Acceleration data in positive X-axis (2)
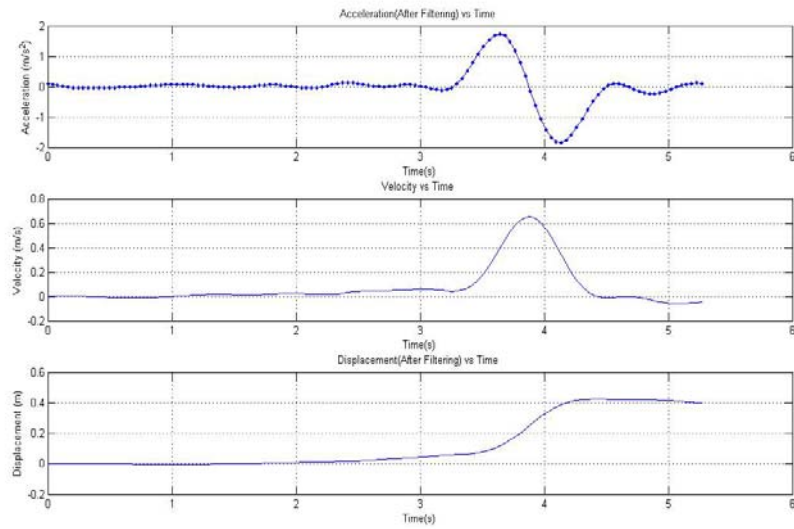
Figure 39.   Acceleration data in positive X-axis (3)
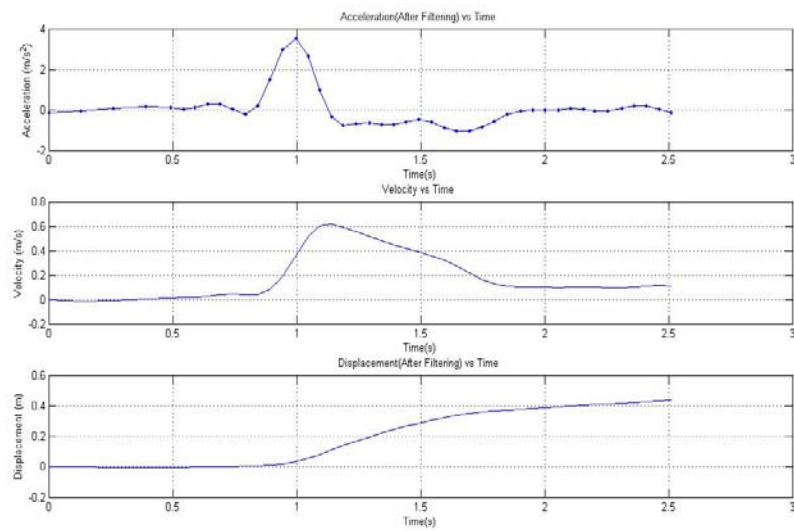
Figure 40.   Acceleration data in positive X-axis (4)
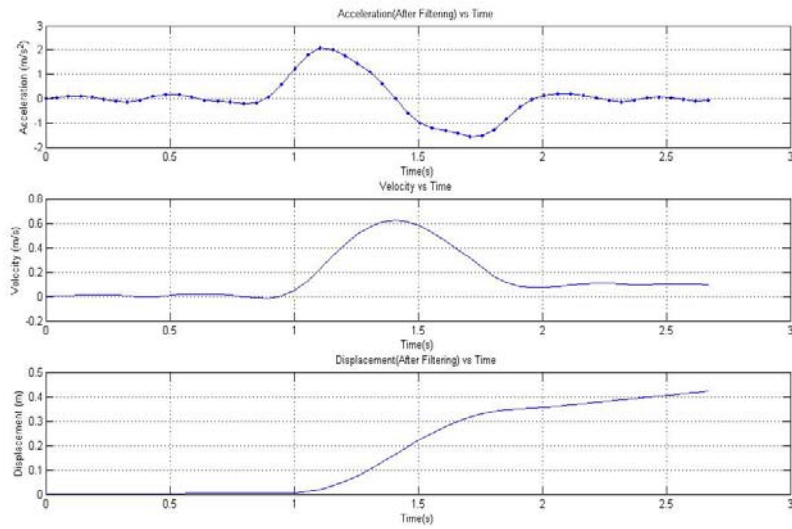
Figure 41.   Acceleration data in positive X-axis (5)
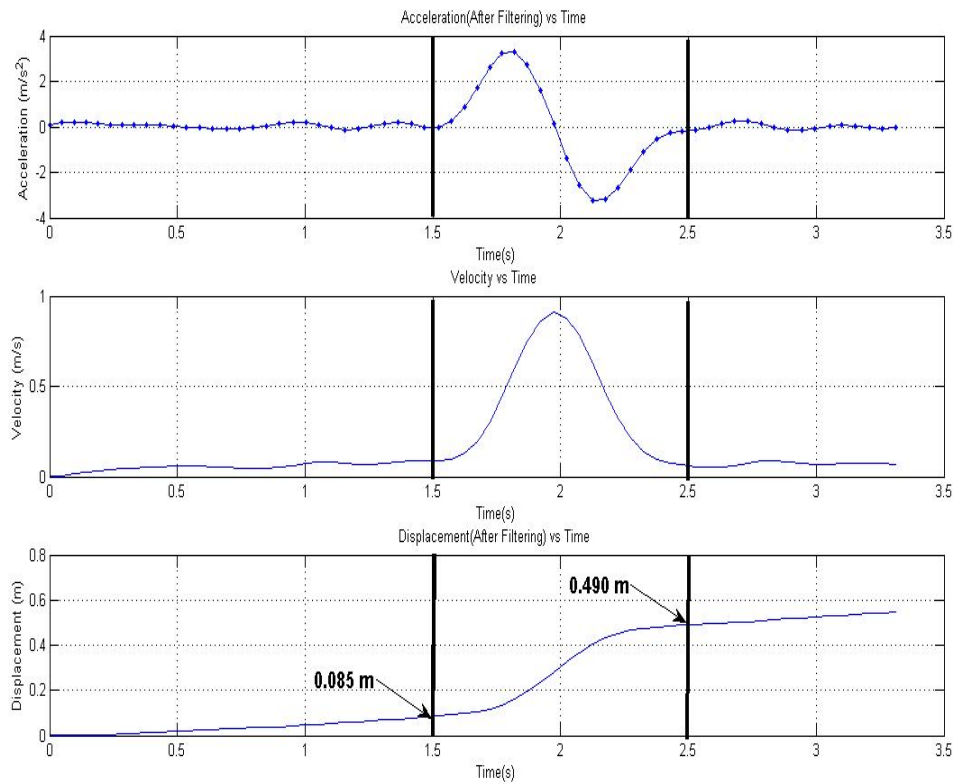
Figure 42.   Calculation of displacement in positive X-axis

Figure 42 shows how the displacement after a move was calculated. The black vertical lines indicate where the move was started and stopped, in time. For example, Figure 42 shows that the move started at 1.5 seconds and ended at 2.5 seconds. The resulting displacement calculation, (0.49 m – 0.085 m) resulted in a 40.5 cm move in the positive x direction, which is remarkably accurate. In effect, stationary drift before and after the move was ignored.

Number of tests	t= t1	t= t2	Measured displacement	Deviation
Test 1	0.0850 m	0.4900 m	40.50 cm	0.5 cm
Test 2	0.0651 m	0.4726 m	40.75 cm	0.75 cm
Test 3	0.0585 m	0.4235 m	36.50 cm	-3.5 cm
Test 4	0.0070 m	0.3930 m	38.60 cm	-1.4 cm
Test 5	0.0055 m	0.3550 m	34.95 cm	-5.05 cm

Table 3.   Measured displacements in positive X-axis for a real distance of 40 cm

From the results shown in Table 3, it is observed that the standard deviation of the measured displacements for 40 cm movement in the positive X-axis is 2.24 cm. In this case, the error of the accelerometer is 5.6%. In other words, the accuracy of the accelerometer in measuring the displacement in the positive X-axis is 94.4%.

For the movement of the accelerometer in the negative X-axis, Figures 43-47 show the acceleration data, velocity and displacement in positive direction of the X-axis for a distance of 40 cm.
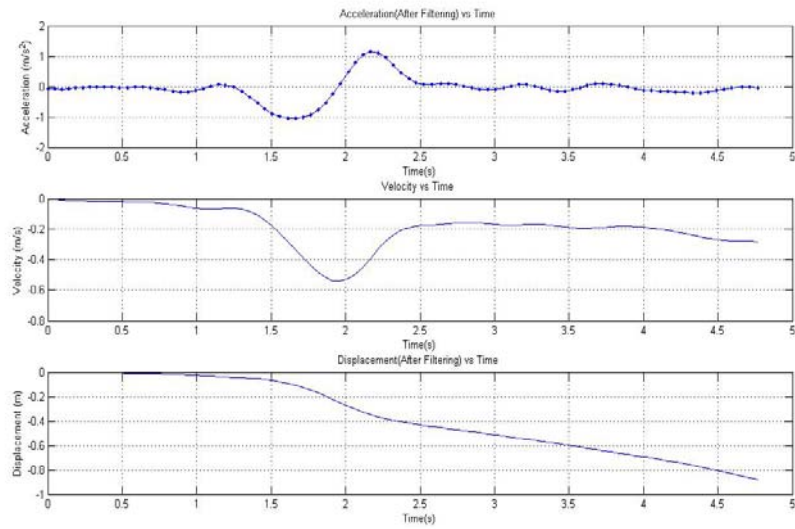
Figure 43.   Acceleration data in negative X-axis (1)
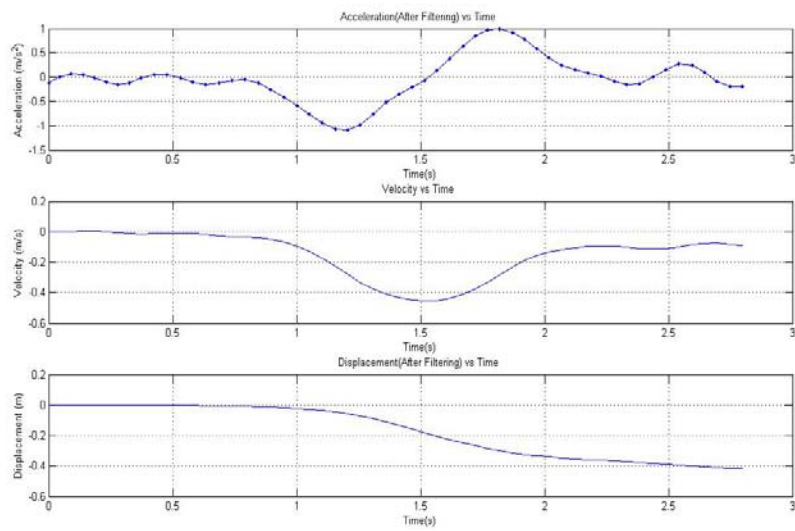
Figure 44.   Acceleration data in negative X-axis (2)
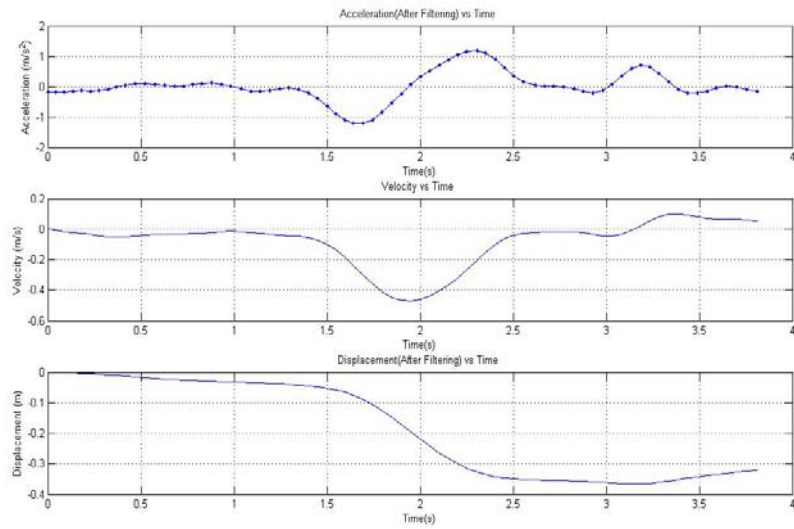
Figure 45.   Acceleration data in negative X-axis (3)
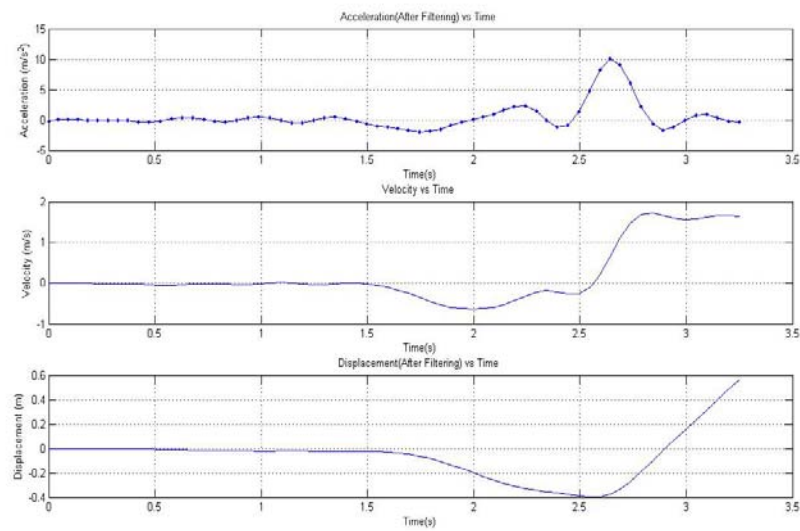
Figure 46.   Acceleration data in negative X-axis (4)
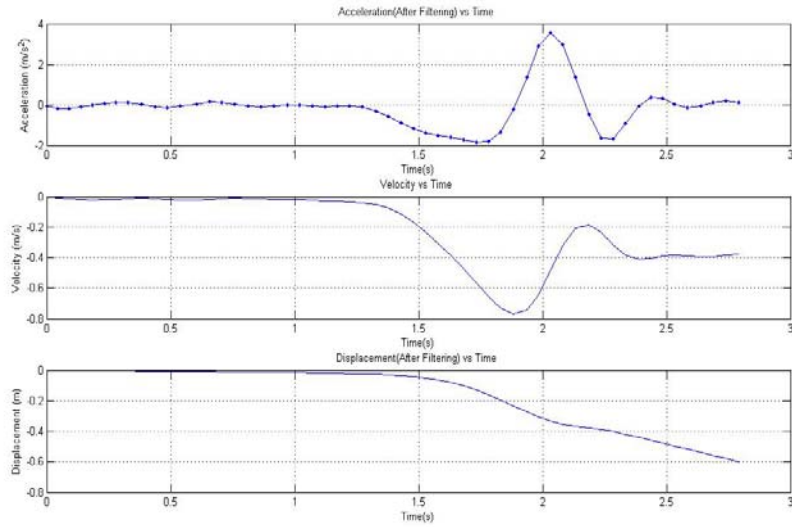
Figure 47.   Acceleration data in negative X-axis (5)

To determine the accuracy of the accelerometer for the movement in the negative X-axis, the exact same method was used as in measuring the displacement in the positive X-axis. From the acceleration data, the times at which movement started and stopped was deduced. Then the difference in displacement between those times was calculated to obtain the measured displacement in the negative X-axis. Figure 46-47 show that the acceleration measured by the accelerometer after it stops, which should be zero, is equal or larger than the acceleration measured during the movement. It is a good example of how large a drift might be observed while the accelerometer is stationary.

Number of tests	t= t1	t= t2	Measured displacement	Deviation
Test 1	-0.0405 m	-0.4400 m	39.95 cm	-0.05 cm
Test 2	-0.0100 m	-0.3750 m	36.50 cm	-3.50 cm
Test 3	-0.0400 m	-0.3553 m	31.53 cm	-8.47 cm
Test 4	-0.0235 m	-0.3520 m	32.85 cm	-7.15 cm
Test 5	-0.0250 m	-0.3753 m	35.03 cm	-4.97 cm

Table 4.   Measured displacements in negative X-axis for a real distance of 40 cm

From the results shown in Table 4, it can be said that the average of the deviations in measured displacements for a 40 cm movement in the negative X-axis is 4.828 cm. The accuracy of the accelerometer in measuring the displacement in the negative X-axis is 87.9%, which is less than the accuracy in the positive direction of the X-axis (94.4%).

Figures 48-52 show the acceleration data, velocity and displacement in the positive direction of the Y-axis for a distance of 40 cm.
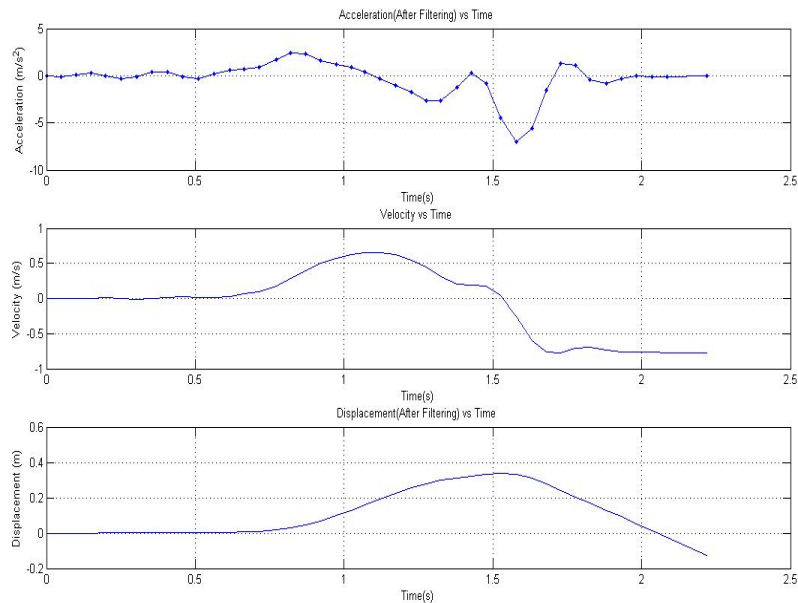
Figure 48.   Acceleration data in positive Y-axis (1)
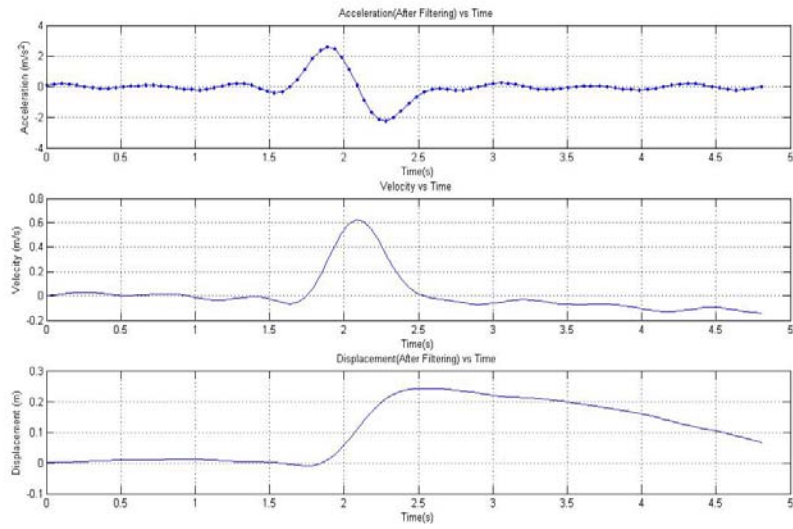
Figure 49.   Acceleration data in positive Y-axis (2)
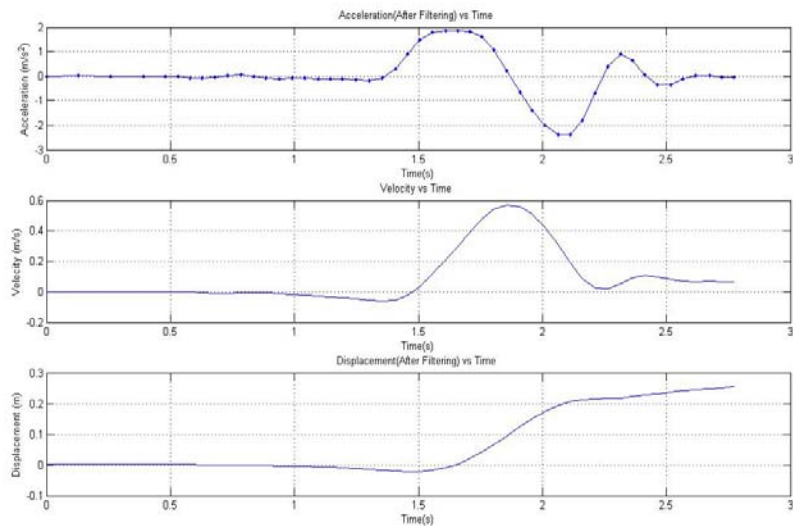
Figure 50.   Acceleration data in positive Y-axis (3)
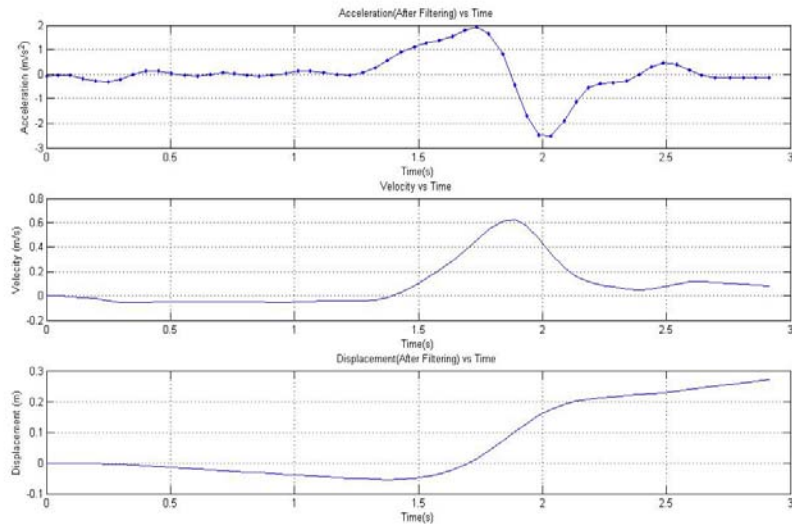
Figure 51.   Acceleration data in positive Y-axis (4)
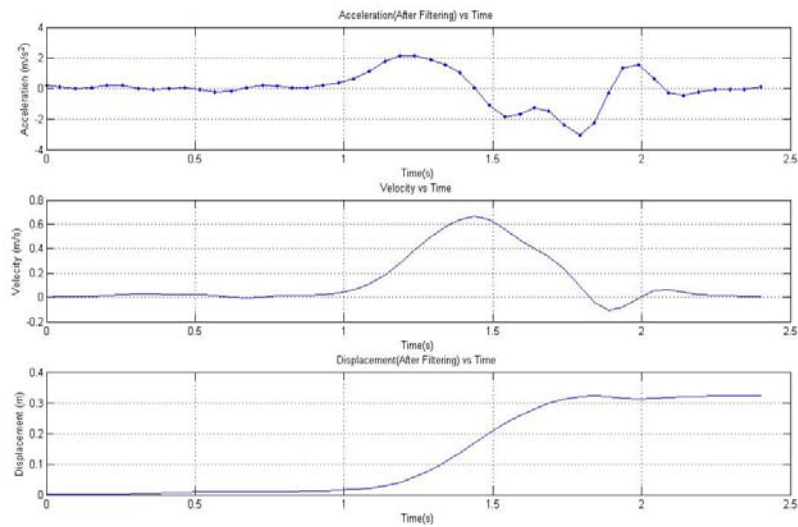
Figure 52.   Acceleration data in positive Y-axis (5)

Using the plots that show the acceleration data, the times at which the move started and stopped in the experiments can be obtained. Then, the measured displacement is calculated using the same method explained previously. Table 5 shows the measured displacements in positive Y-axis and deviations from real distance.

Number of tests	t= t1	t= t2	Measured displacement	Deviation
Test 1	0.0033 m	0.3212 m	31.79 cm	-8.21 cm
Test 2	-0.0492 m	0.2423 m	29.15 cm	-10.85 cm
Test 3	-0.0180 m	0.2166 m	23.46 cm	-16.54 cm
Test 4	-0.0500 m	0.2225 m	27.25 cm	-12.75 cm
Test 5	0.0110 m	0.3200 m	30.90 cm	-9.10 cm

Table 5.   Measured displacements in positive Y-axis for a real distance of 40 cm

From the result shown in Table 5, it can be said that the absolute average of the differences between measured displacements and real distance of 40 cm in the positive Y-axis is 11.49 cm. For the positive Y-axis, the error of accelerometer is 28.7%. In other words, the accuracy of the accelerometer in measuring the displacement in the positive Y-axis is 71.3%.

For the movement in the negative Y-axis, Figures 53-57 show the acceleration data, velocity and displacement.
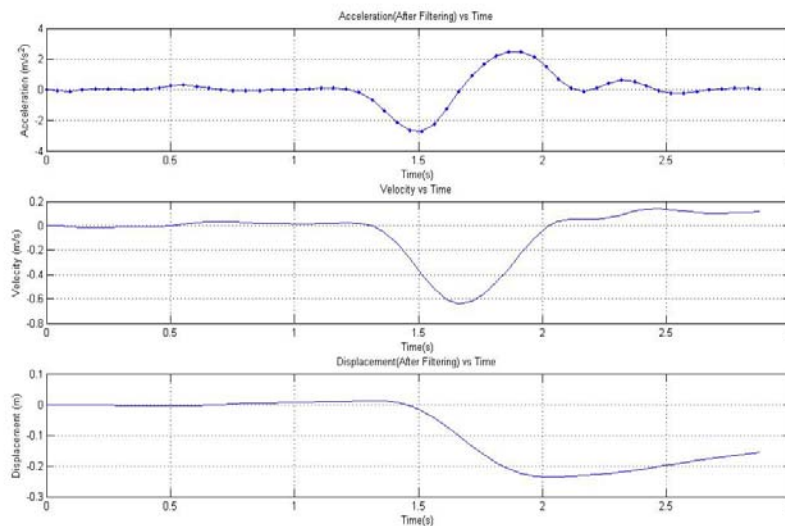
Figure 53.   Acceleration data in negative Y-axis (1)
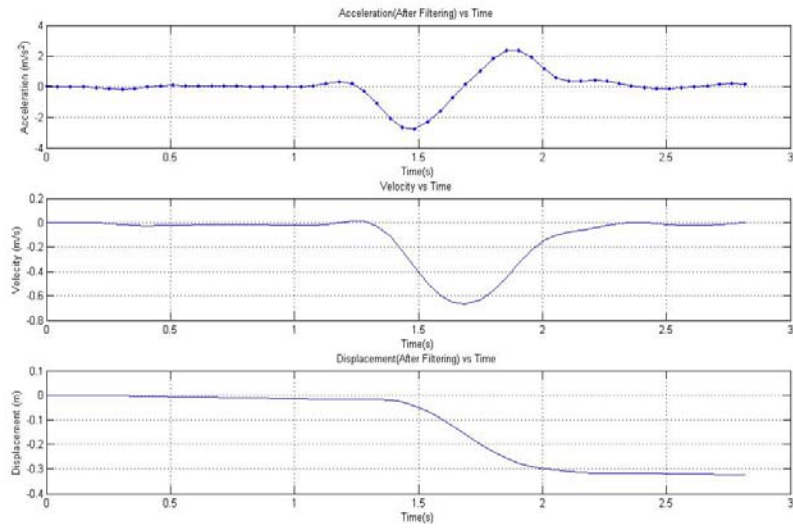
Figure 54.   Acceleration data in negative Y-axis (2)
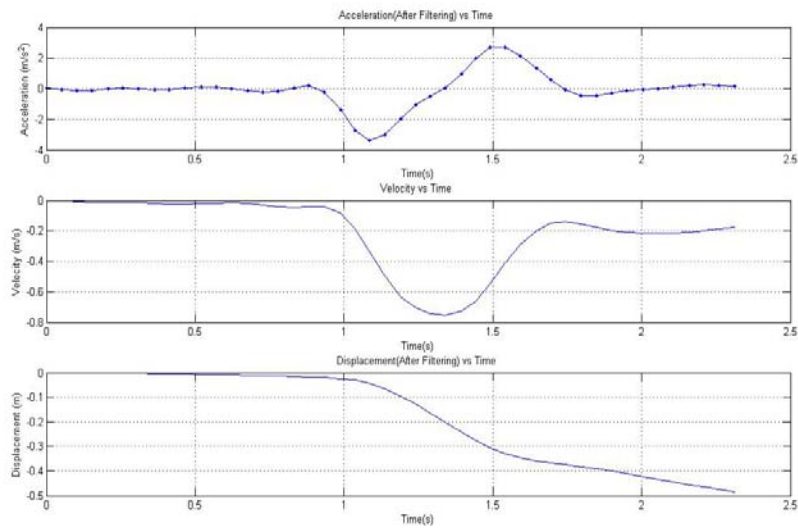
Figure 55.   Acceleration data in negative Y-axis (3)
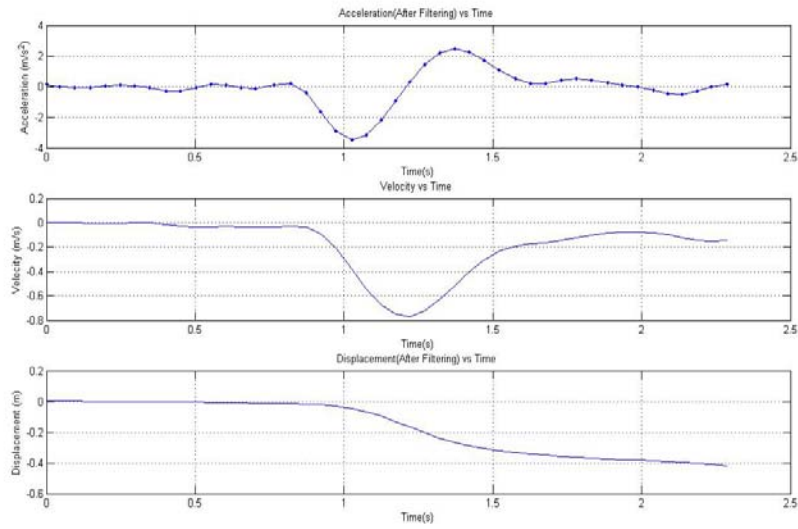
Figure 56.   Acceleration data in negative Y-axis (4)
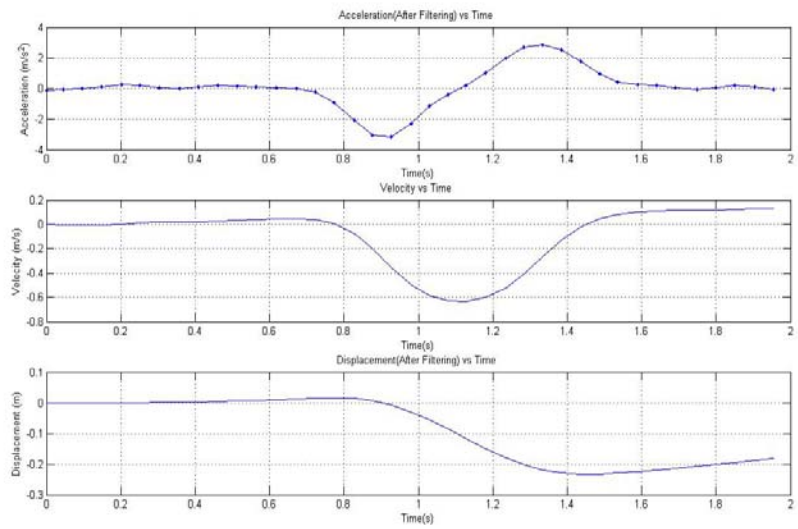
Figure 57.   Acceleration data in negative Y-axis (5)

Using the data from Figures 53-57, the measured displacements for the accelerometer in the negative Y-axis were calculated, as shown below.

Number of tests	t= t1	t= t2	Measured displacement	Deviation
Test 1	0.0100 m	-0.2300 m	24.00 cm	-16.00 cm
Test 2	-0.0150 m	-0.3200 m	30.50 cm	-9.50 cm
Test 3	-0.0200 m	-0.3730 m	35.30 cm	-4.70 cm
Test 4	-0.0150 m	-0.3840 m	36.90 cm	-3.10 cm
Test 5	0.014 m	-0.2200 m	23.40 cm	-16.60 cm

Table 6. Measured displacements in negative Y-axis for a real distance of 40 cm

From the results shown in Table 6, it is observed that the average of the measured displacements error is 9.98 cm. The accuracy of the accelerometer in measuring displacement in the negative Y-axis is 75.05%.

Combining the results of the experiments for a distance of 40 cm in the X and Y axes, the position of the mobile robot in two axes can be estimated separately. Figure 58 shows the estimation of the robot displacement in the X and Y axes.
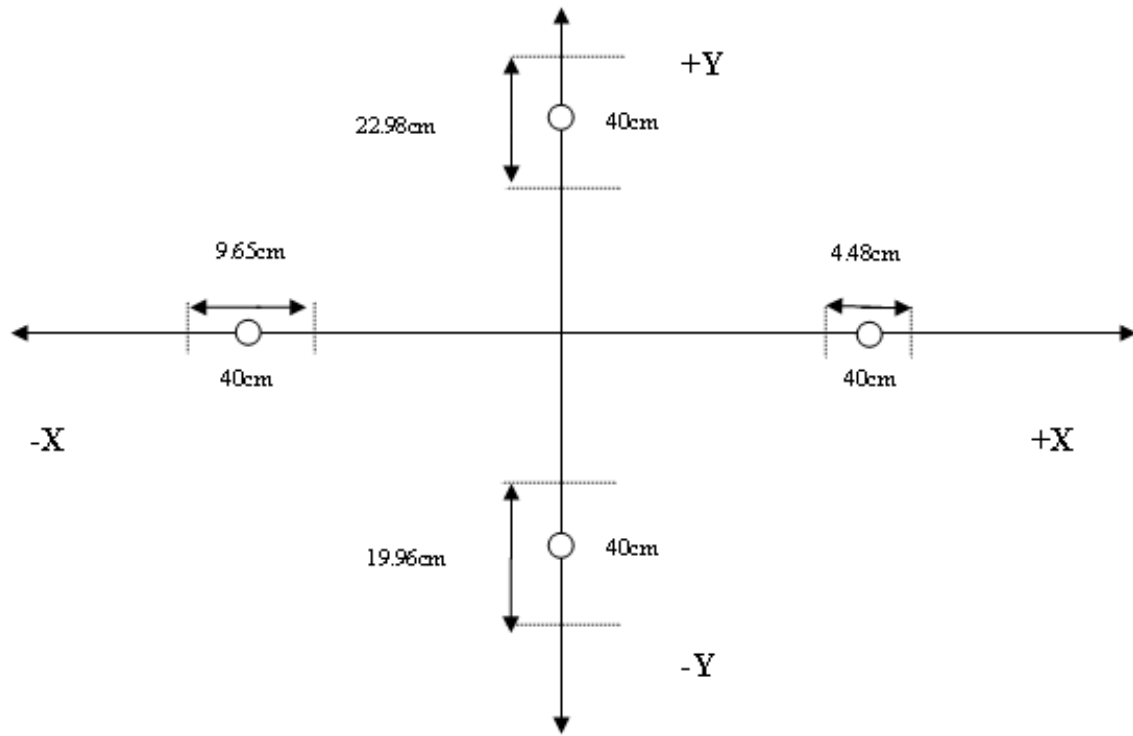
Figure 58.   Accuracy of accelerometer in measuring displacement in positive/negative X and Y axes

C.   2-D APPLICATION

Two-dimensional data were collected for motion on a straight and curved path. For the straight path, the accelerometer was moved in four directions in the X-Y plane as shown in Figure 59.
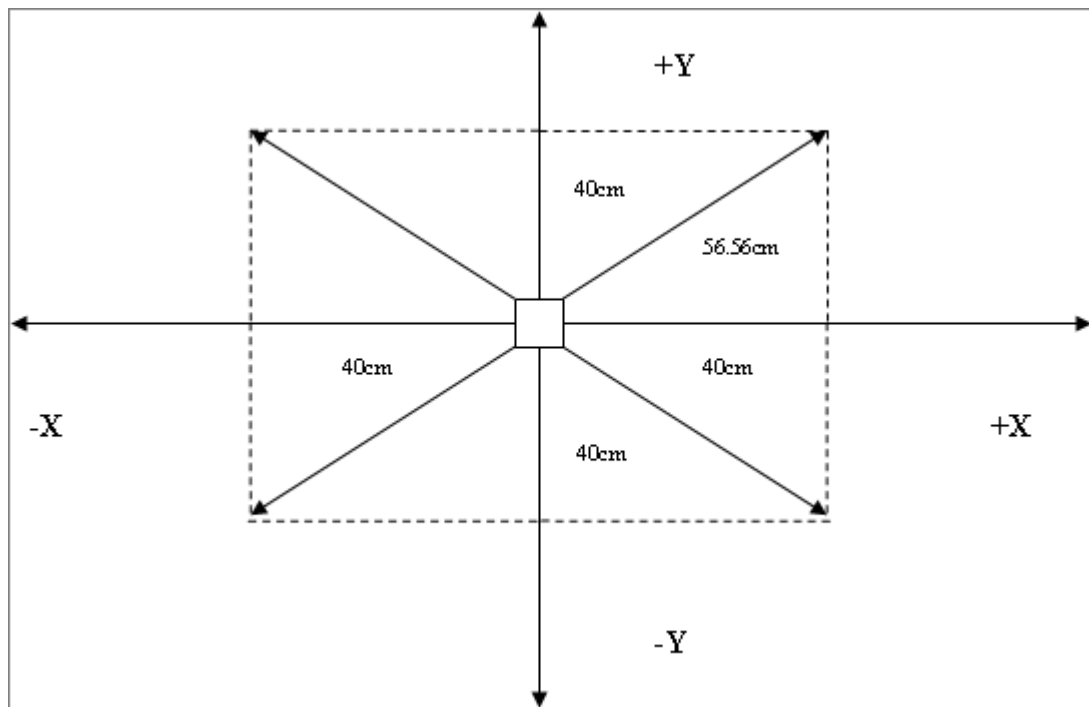
Figure 59.   2-D Straight path experiments for Crossbow accelerometer

Twenty sets of data were collected in this configuration, five sets for each direction. Prior to each run, the accelerometer was leveled with a bubble and digital level as shown in Figure 60.
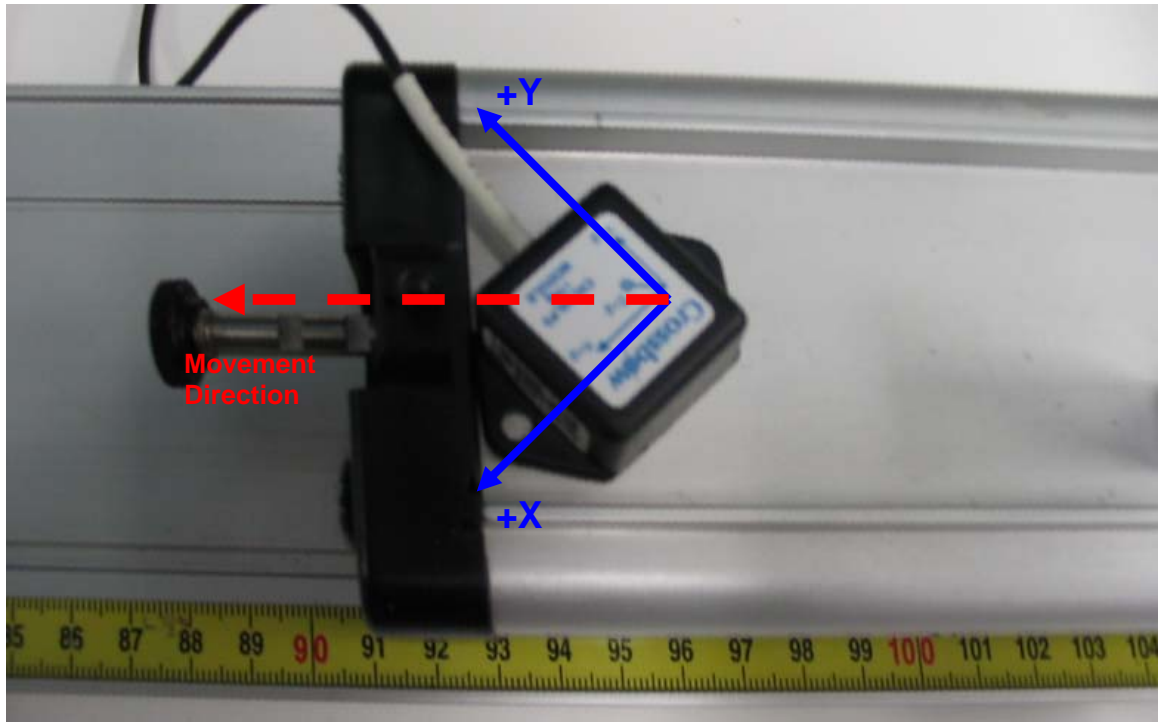
Figure 60.   Leveled path in 2-D

Figures 61-65 show the acceleration data, and the calculated velocity and displacement for the positive X and Y direction.
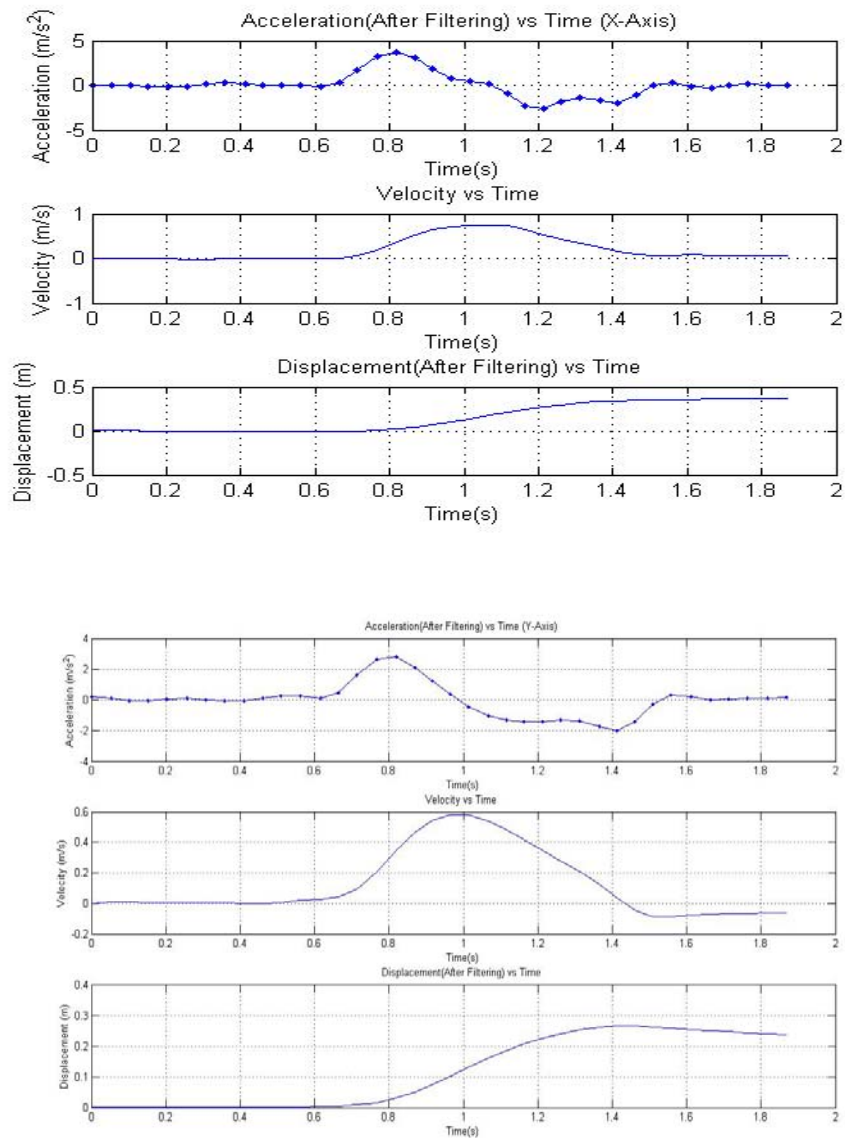
Figure 61.   Acceleration data, velocity and displacement in +X and +Y (1)
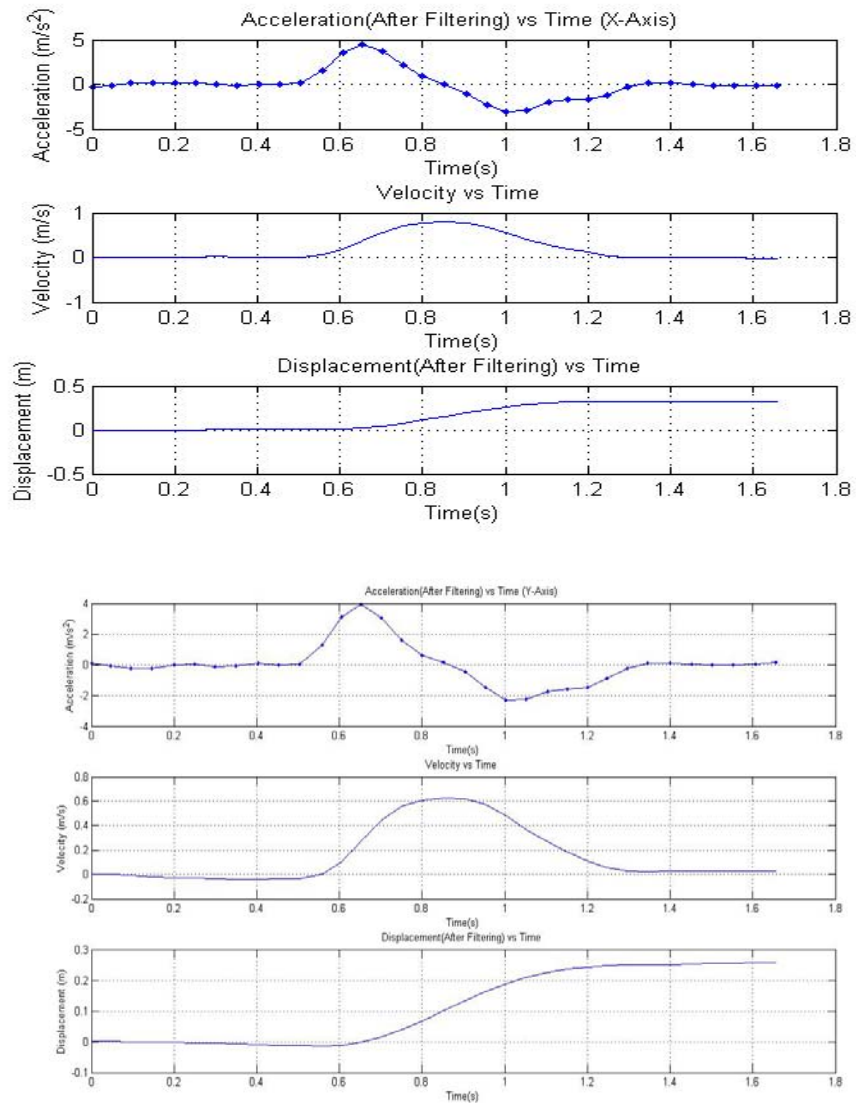
Figure 62.   Acceleration data, velocity and displacement in +X and +Y (2)
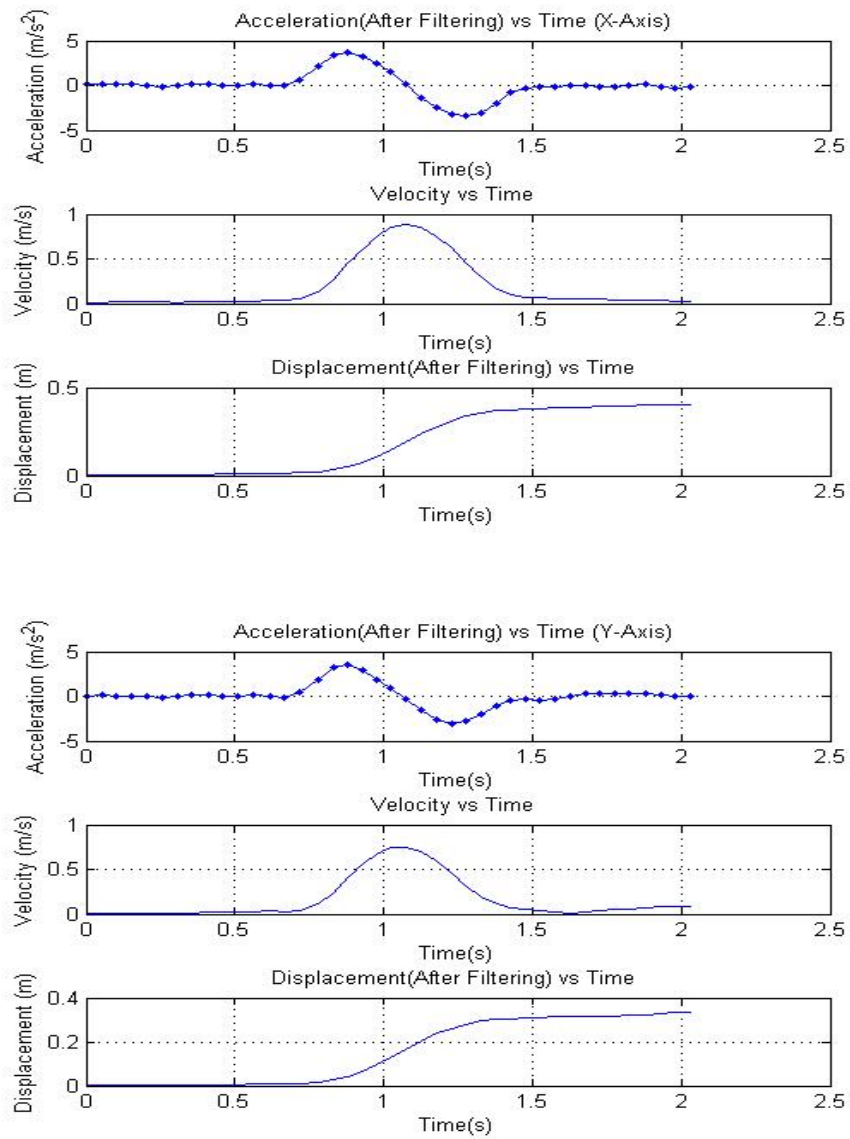
Figure 63.   Acceleration data, velocity and displacement in +X and +Y (3)

60
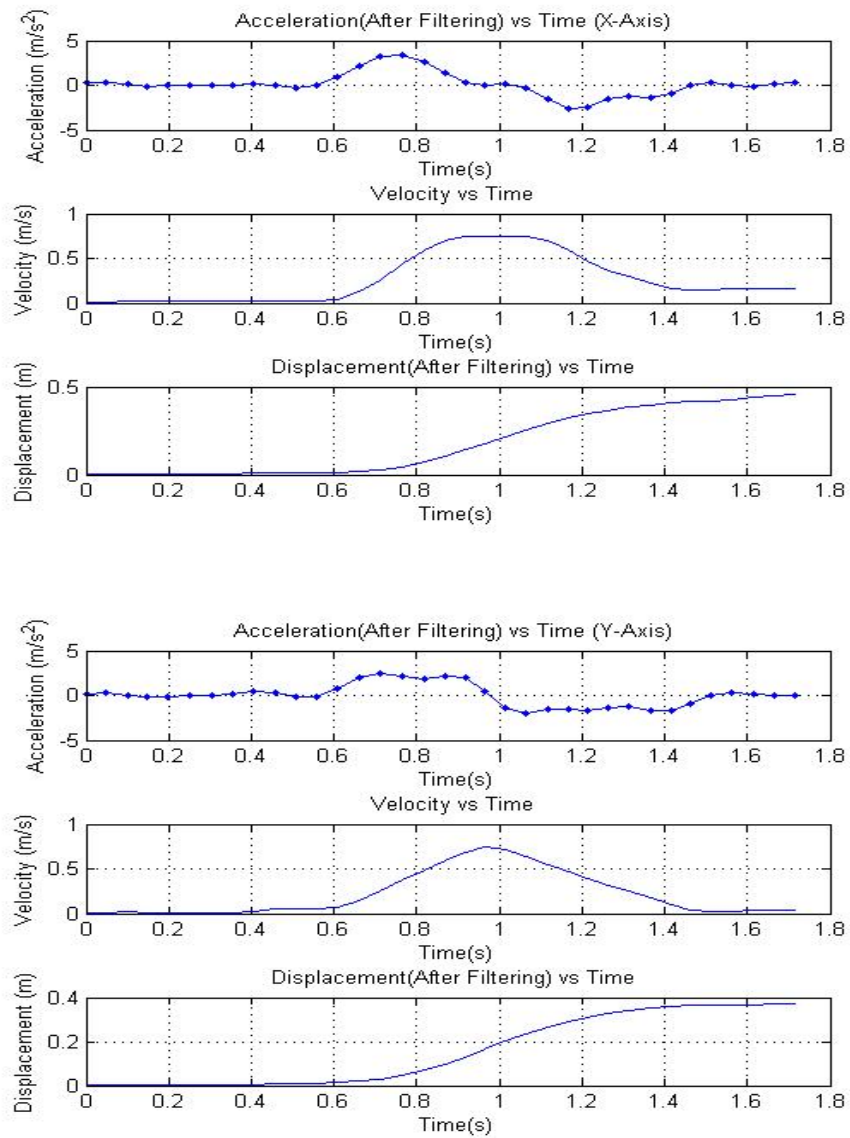
Figure 64.   Acceleration data, velocity and displacement in +X and +Y (4)
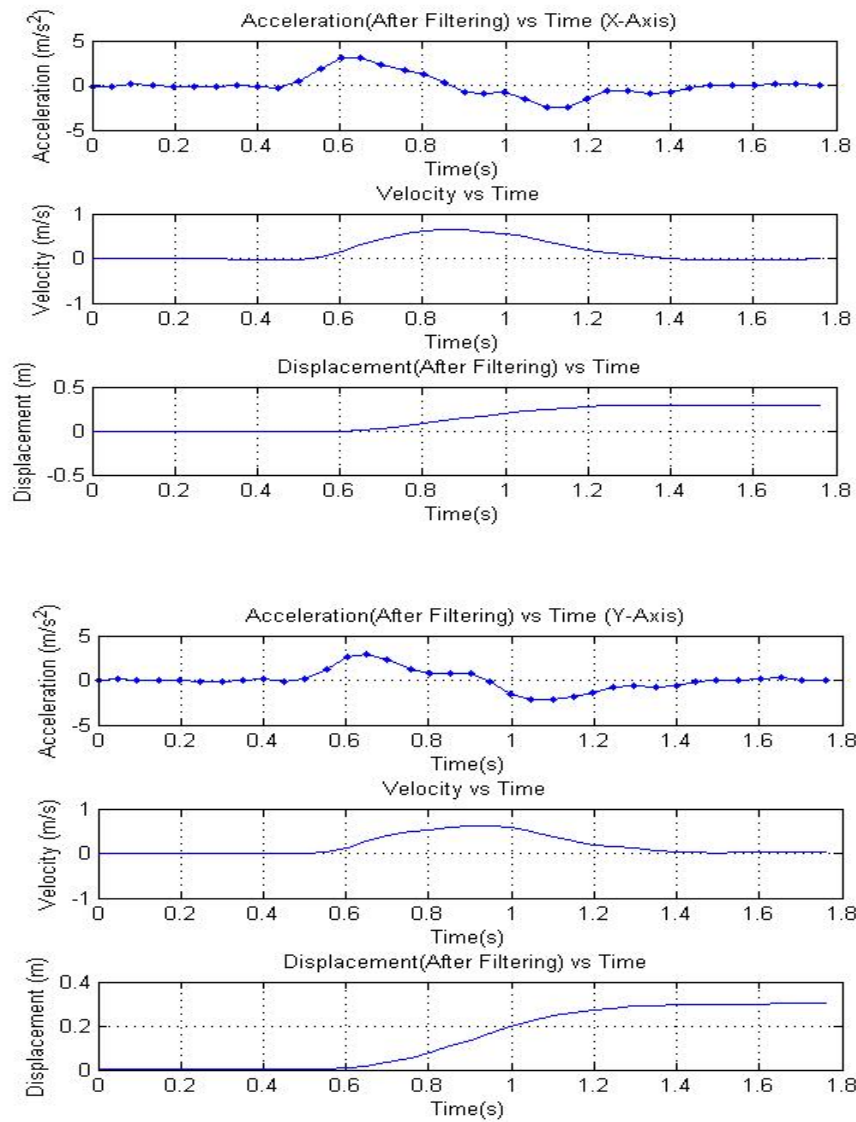
Figure 65.   Acceleration data, velocity and displacement in +X and +Y (5)

Table 7 is a summary of the data collected for these displacements.

Number of tests	Measured displacement X-axis	Measured displacement Y-axis	Deviation in X-axis	Deviation in Y-axis
Test 1	35.50cm	26.00 cm	-4.5 cm	-14.00 cm
Test 2	33.00 cm	26.30 cm	-7.0 cm	-13.70 cm
Test 3	38.30 cm	30.40 cm	-1.7 cm	-9.60 cm
Test 4	40.80 cm	35.40 cm	0.80 cm	-4.60 cm
Test 5	29.00 cm	29.80 cm	-11.00 cm	-10.20 cm

Table 7.   Components of measured displacements in +X and +Y for a real distance of 56.56 cm

From the results shown in Table 6, it can be seen that the absolute averages of the deviations in measured displacements are 5 cm and 10.42 cm for the positive X and Y directions, respectively.

Figure 66 shows the real and measured paths for individual runs. A blue point marks the position where the accelerometer stops. Path projection after the stop is attributed to accelerometer stationery drift.
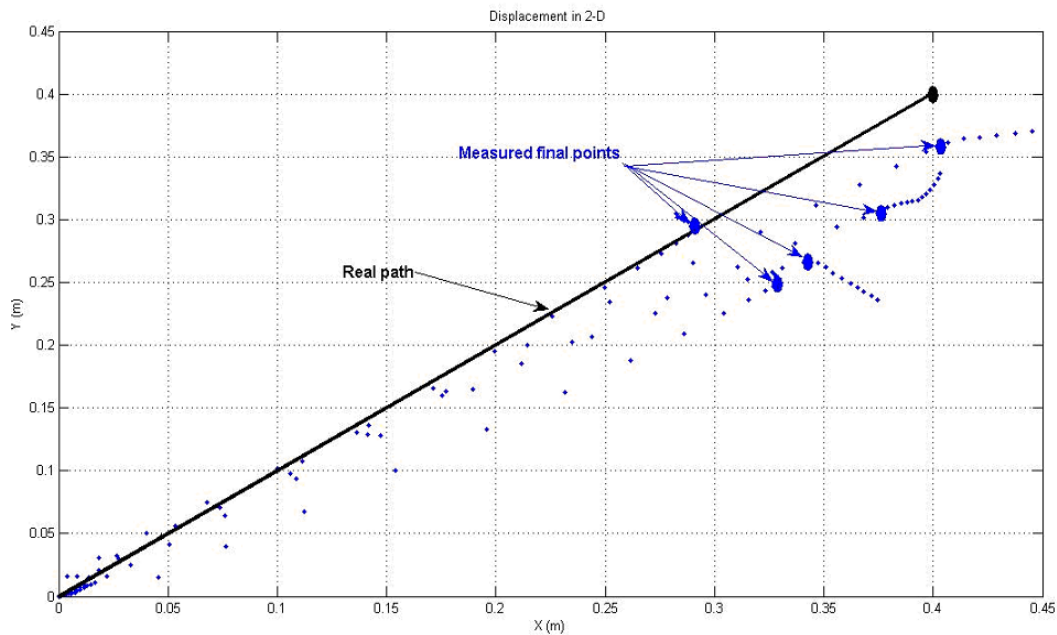
Figure 66.   Real and measured paths followed by accelerometer in +X and +Y axes

Figures 67-71 show the results of data collected for the negative X and positive Y direction.
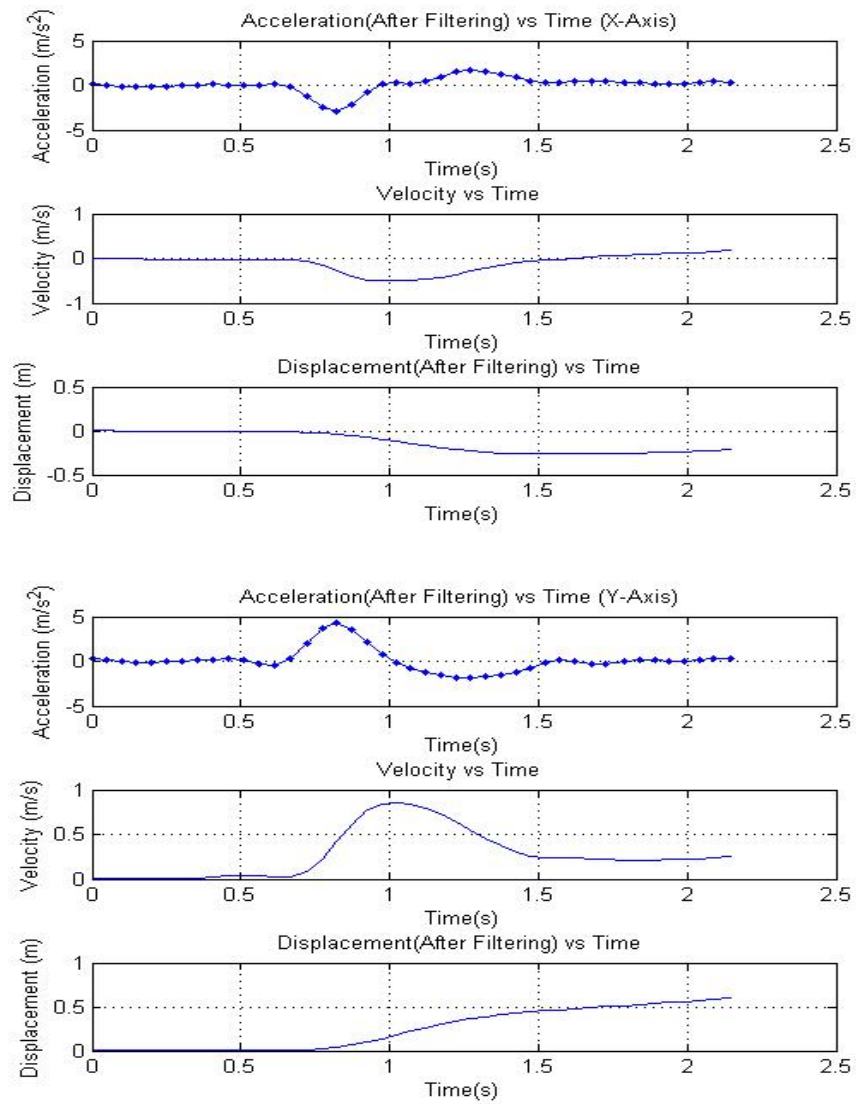
Figure 67.   Acceleration data, velocity and displacement in –X and +Y (1)
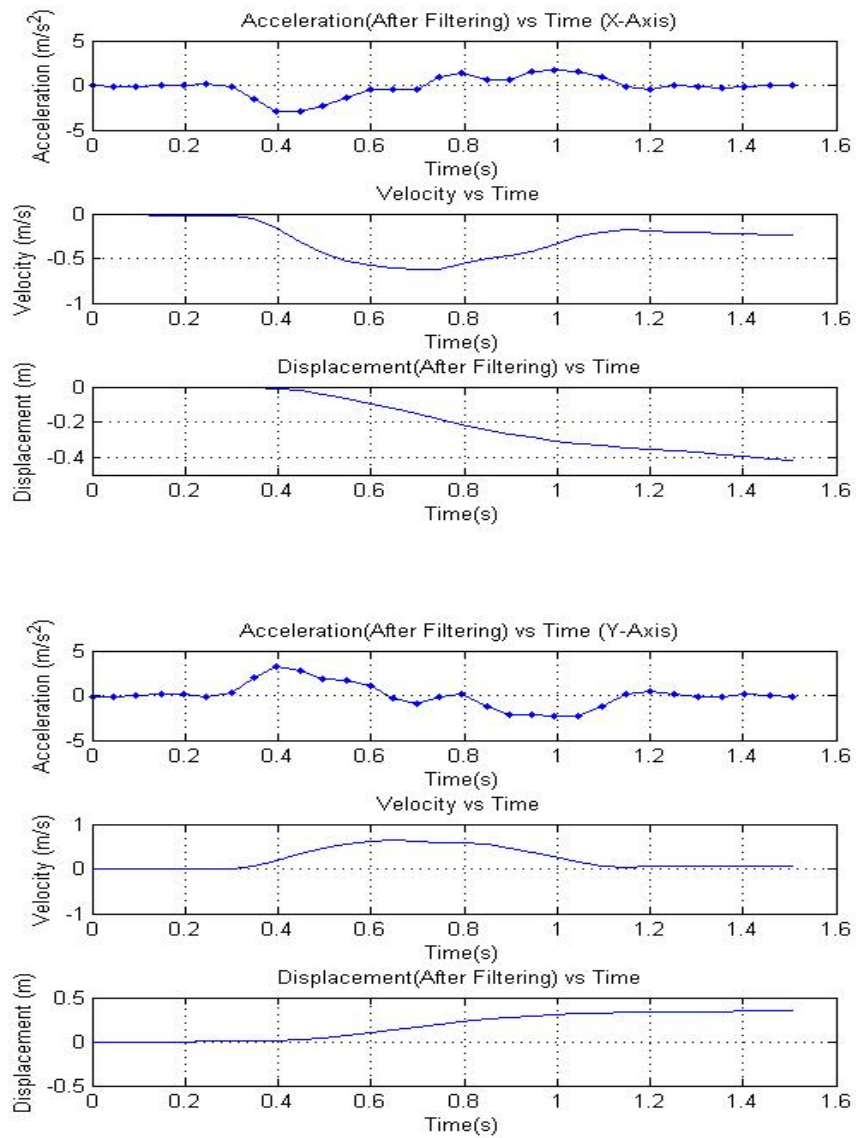
Figure 68.   Acceleration data, velocity and displacement in –X and +Y (2)
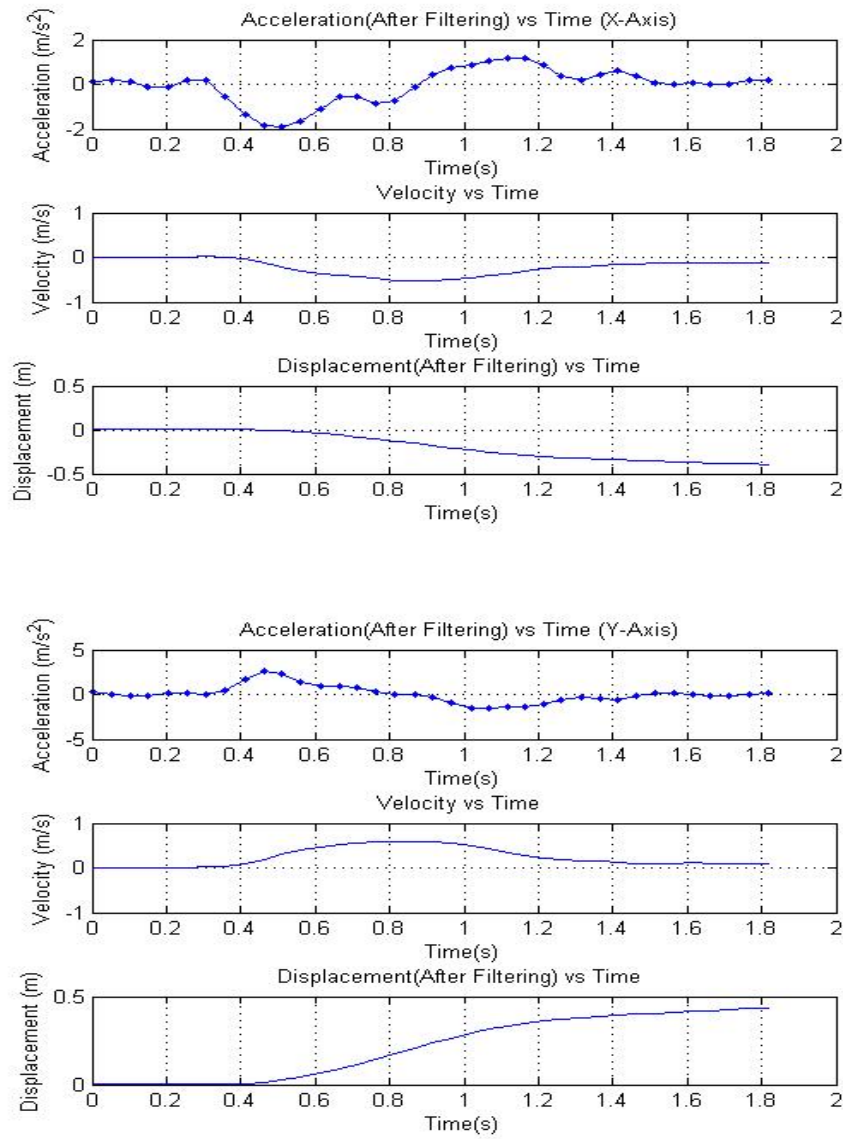
Figure 69.　Acceleration data, velocity and displacement in –X and +Y (3)
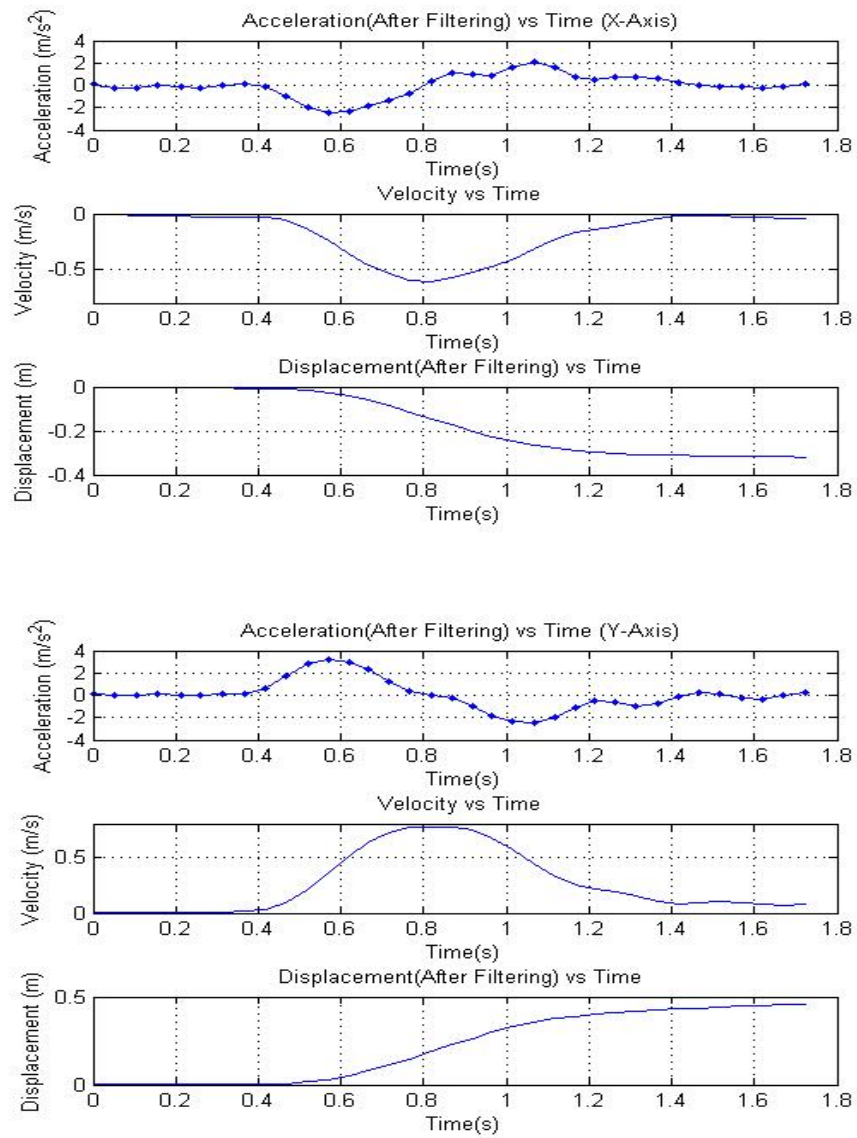
Figure 70.   Acceleration data, velocity and displacement in –X and +Y (4)
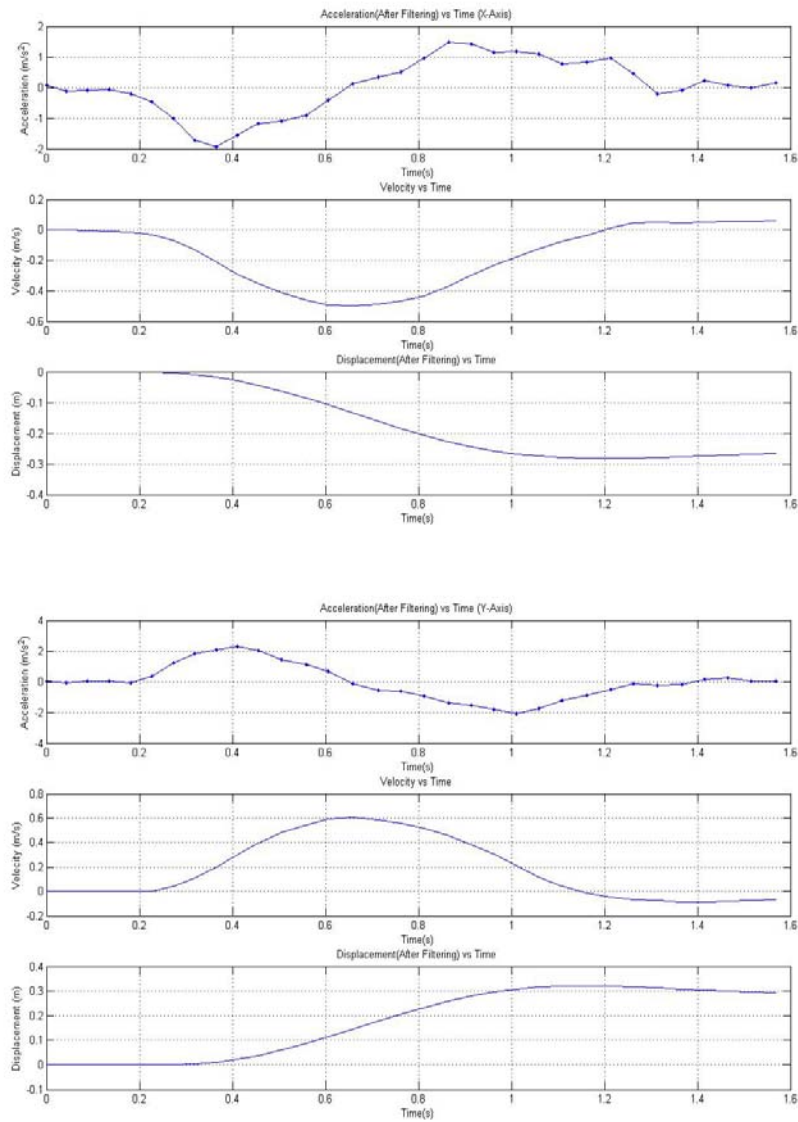
Figure 71.   Acceleration data, velocity and displacement in –X and +Y (5)

Table 8 summarizes the data for the calculated displacement in the negative X and positive Y direction.

Number of tests	Measured displacement X-axis	Measured displacement Y-axis	Deviation in X-axis	Deviation in Y-axis
Test 1	26.00 cm	44.30 cm	-14.00 cm	4.30 cm
Test 2	34.50 cm	33.00 cm	-5.50 cm	-7.00 cm
Test 3	35.50 cm	40.50 cm	-4.50 cm	0.50 cm
Test 4	31.30 cm	43.40 cm	-8.70 cm	3.40 cm
Test 5	28.00 cm	31.50 cm	-12.00 cm	-8.50 cm

Table 8.   Components of measured displacements in -X and +Y for a real distance of 56.56 cm.

The results show that the absolute values of the averages of the deviations in measured displacements are 8.94 cm and 4.74 cm for the negative X and positive Y axis, respectively. Figure 72 compares the measured and calculated motion shown in blue with the ground truth, shown in black.
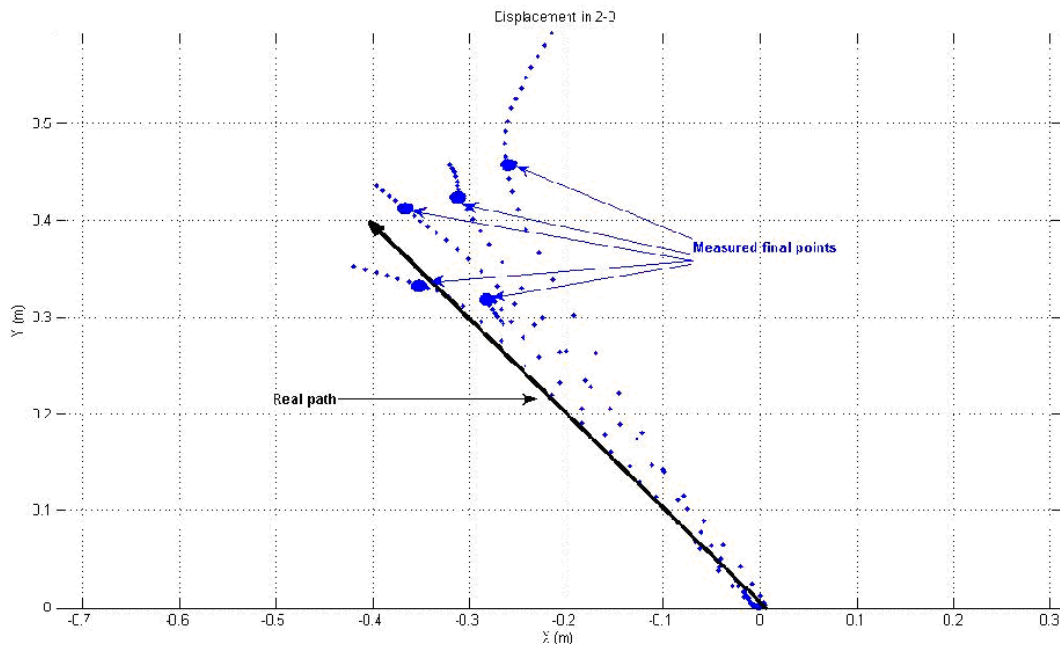
Figure 72.   Real and measured paths followed by accelerometer in –X and +Y axes

Figures 73-77 shows the results for the motion of the accelerometer in the negative X and negative Y directions.
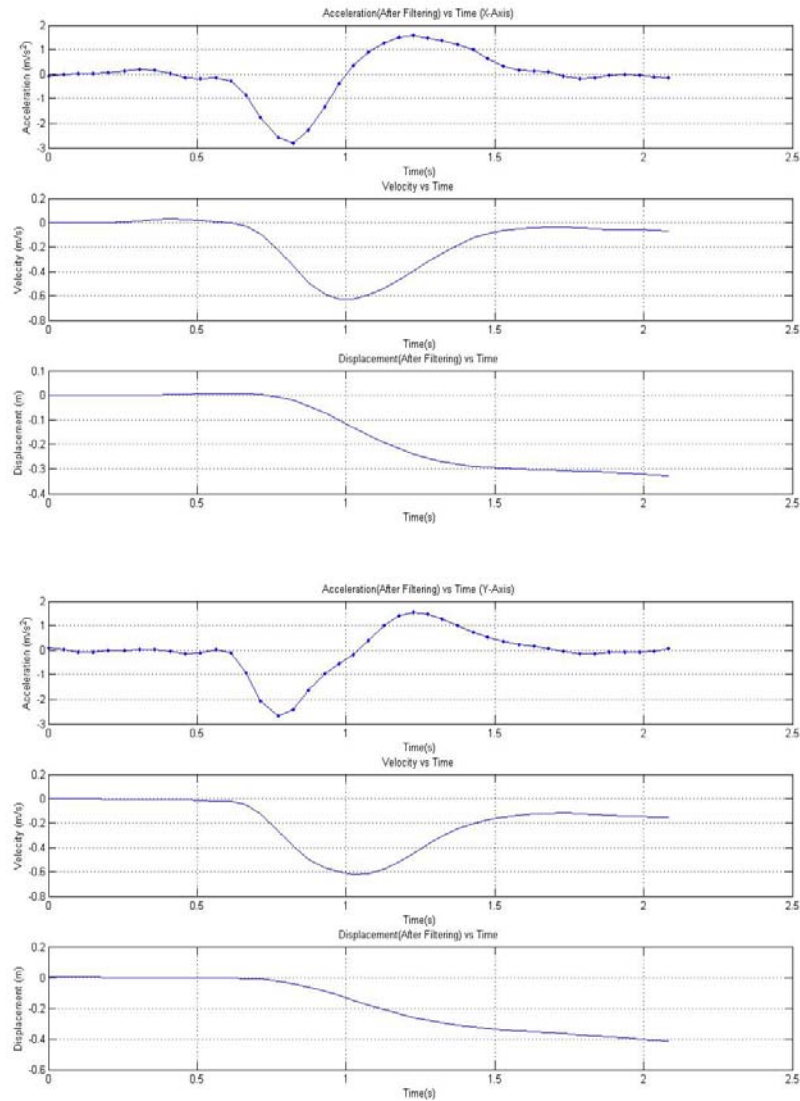
Figure 73.   Acceleration data, velocity and displacement in –X and –Y (1)
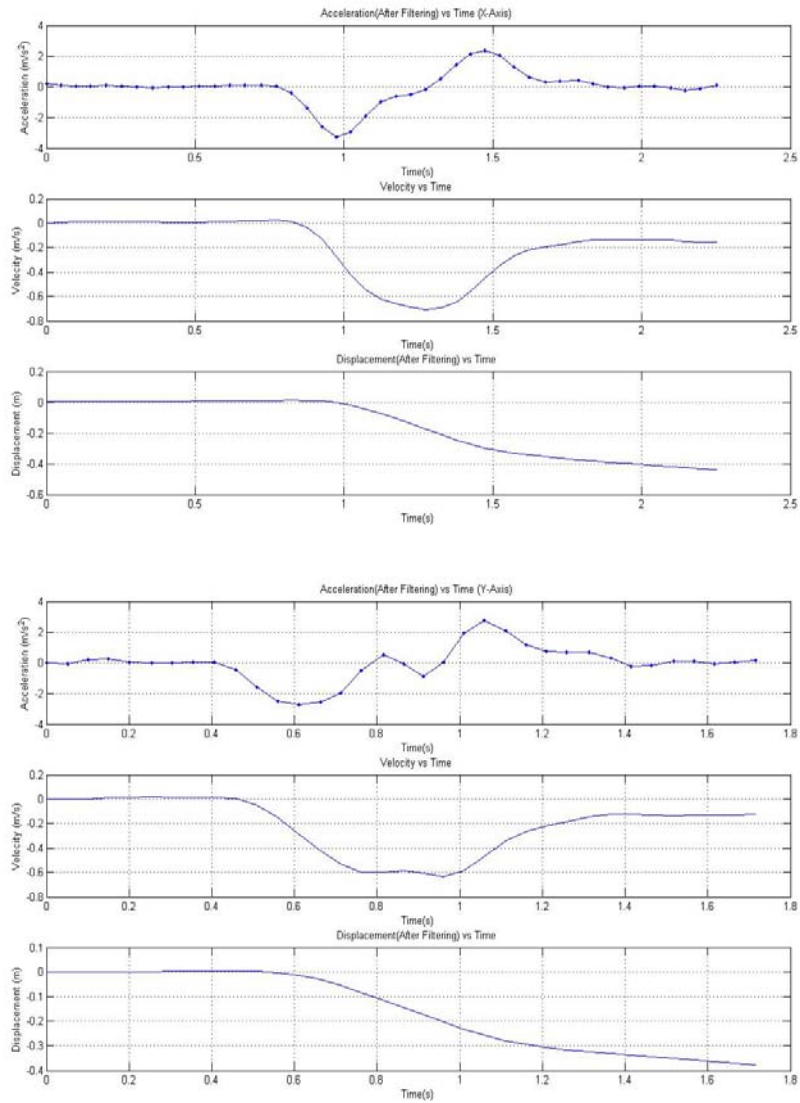
Figure 74.   Acceleration data, velocity and displacement in –X and –Y (2)

71
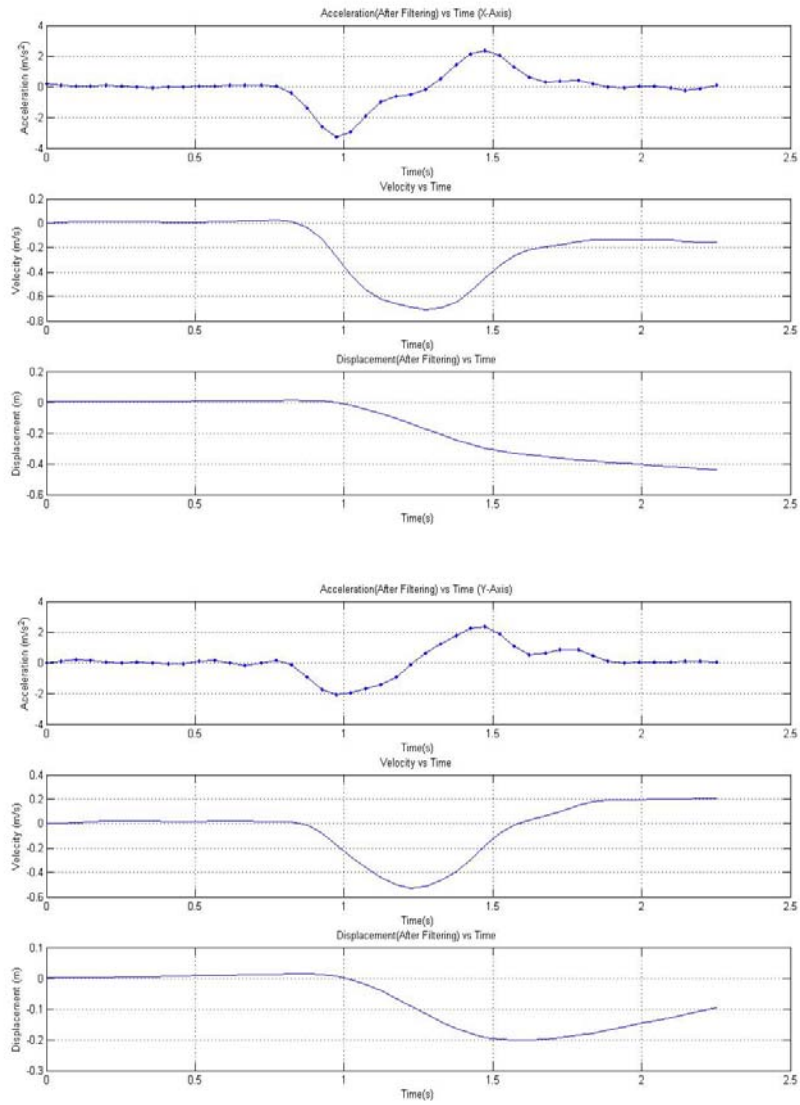
Figure 75.   Acceleration data, velocity and displacement in –X and –Y (3)
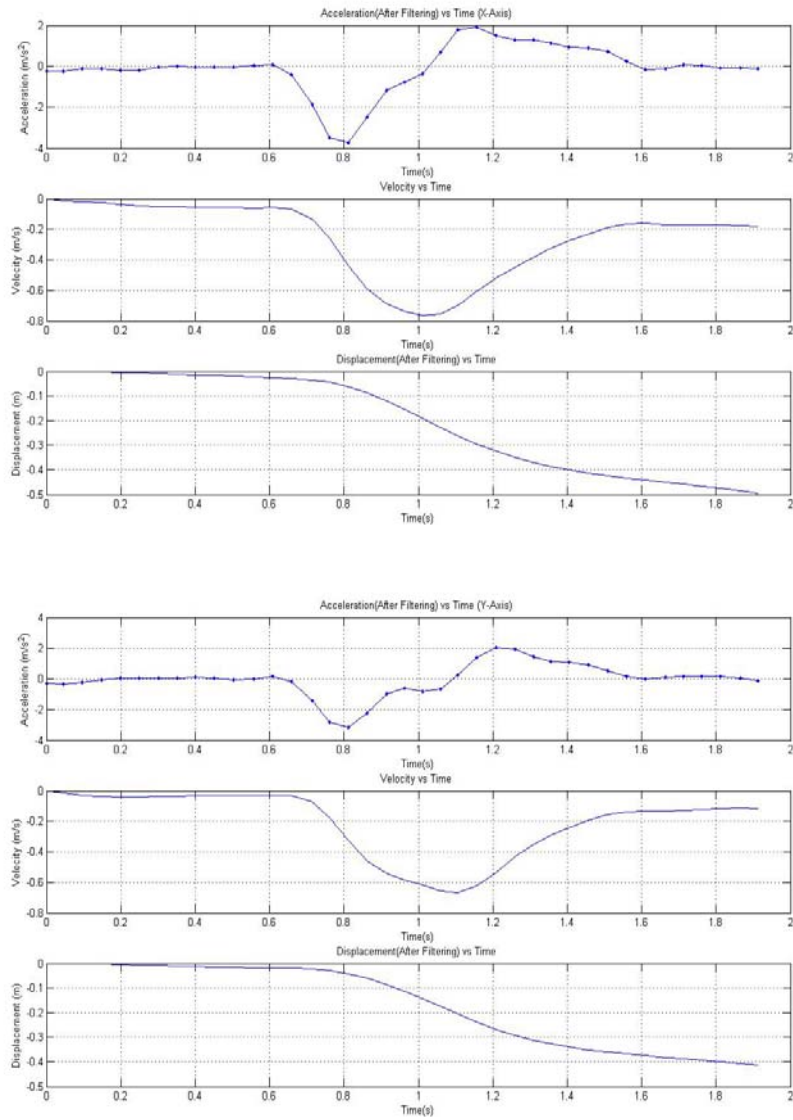
Figure 76.   Acceleration data, velocity and displacement in −X and −Y (4)
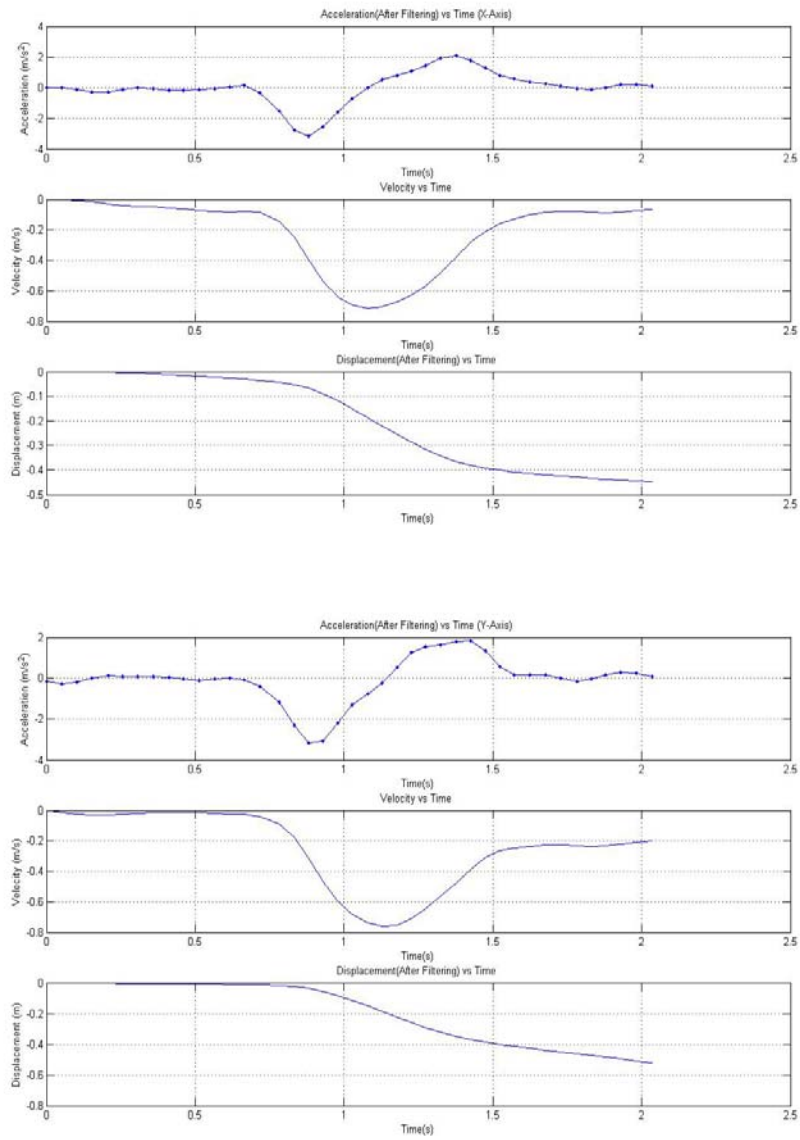
Figure 77.　Acceleration data, velocity and displacement in –X and –Y (5)

Table 9 summarizes the data collected for the X and Y components of the real distance versus measured in the -X and –Y directions.

Number of tests	Measured displacement X-axis	Measured displacement Y-axis	Deviation in X-axis	Deviation in Y-axis
Test 1	30.60 cm	36.35 cm	-9.40 cm	-3.65 cm
Test 2	34.00 cm	33.60 cm	-6.00 cm	-6.40 cm
Test 3	41.50 cm	35.00 cm	1.50 cm	-5.00 cm
Test 4	38.50 cm	41.00 cm	-1.50 cm	1.00 cm
Test 5	36.00 cm	34.50 cm	-4.00 cm	-5.50 cm

Table 9.   Components of measured displacements in -X and -Y for a real distance of 56.56 cm

The results for the case of movement of accelerometer in the negative X and negative Y directions show that the average absolute values of the deviations are 4.48 cm and 4.31 cm in the negative X axis and negative Y axis, respectively. Figure 78 shows the paths measured by the accelerometer and the final points where the movement stops.
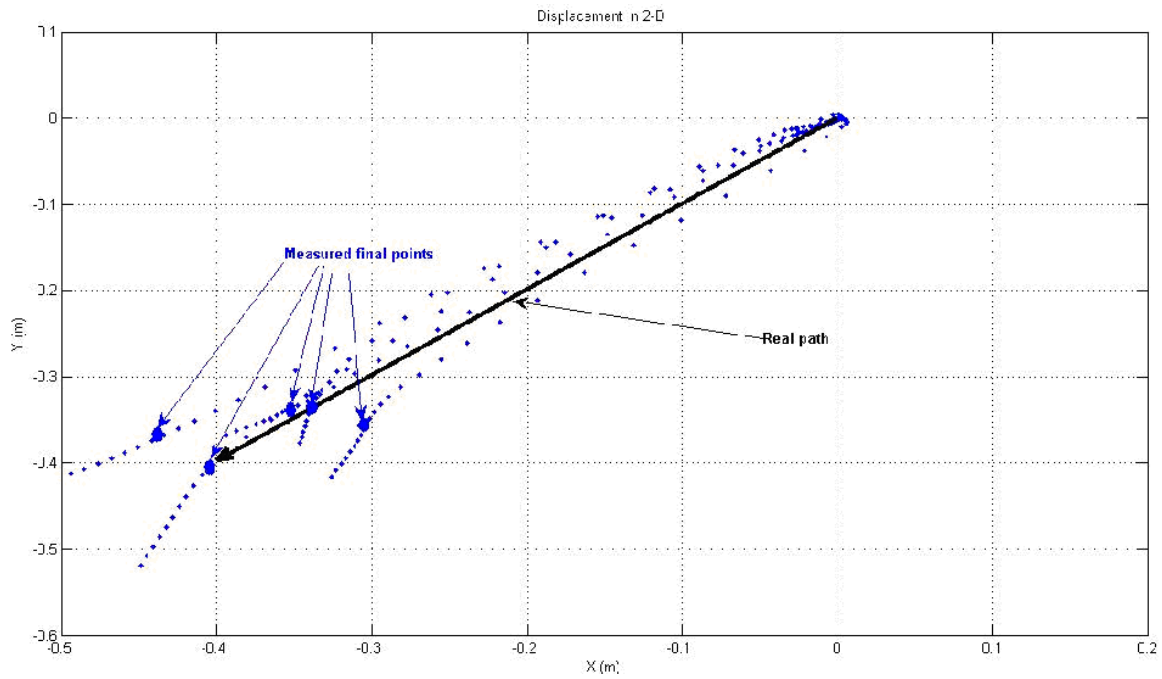
Figure 78.   Real path and measured paths followed by accelerometer in –X and -Y axes

Figures 79-83 shows the results of the experiment for the movement of accelerometer in the positive X and negative Y directions.
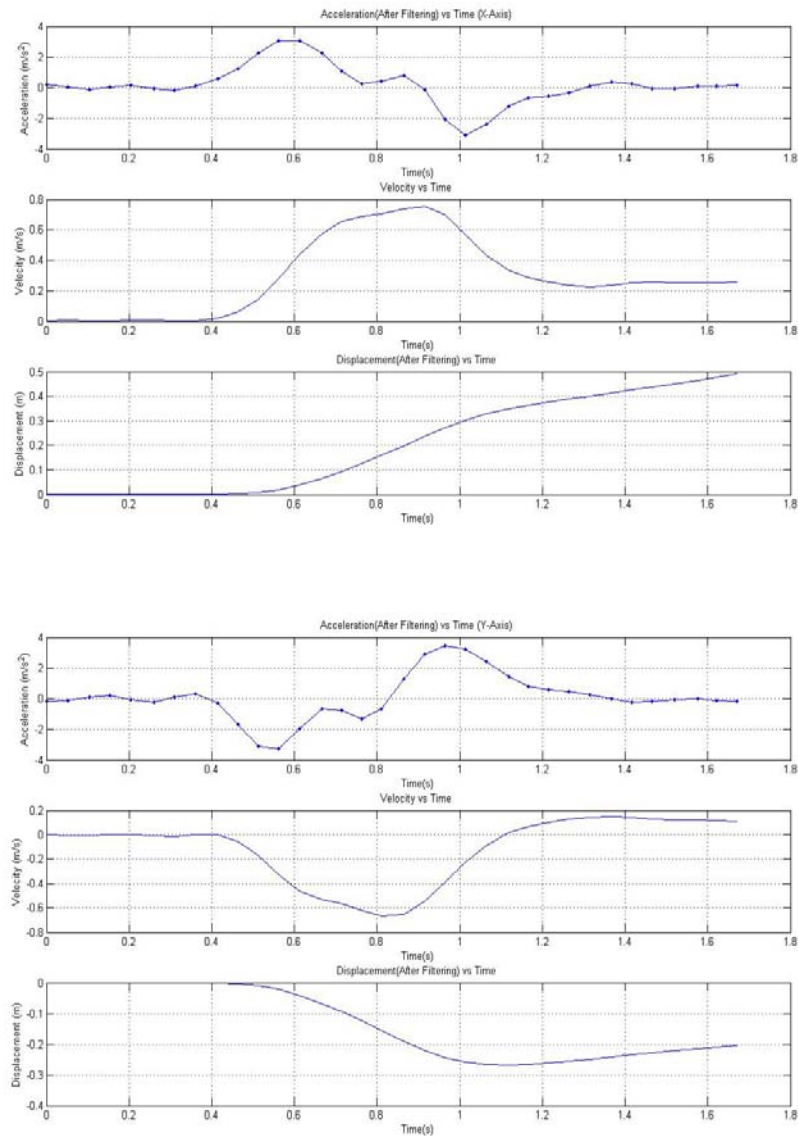
Figure 79.   Acceleration data, velocity and displacement in +X and –Y axes (1)

77
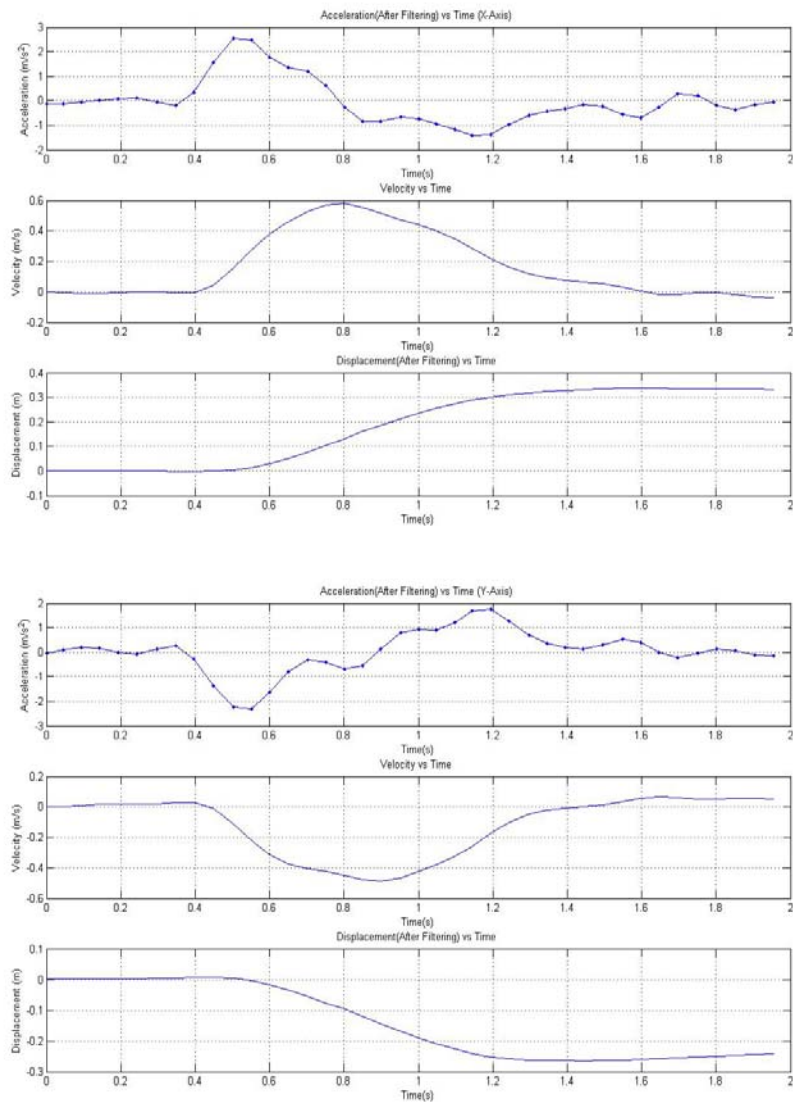
Figure 80. Acceleration data, velocity and displacement in +X and −Y axes (2)
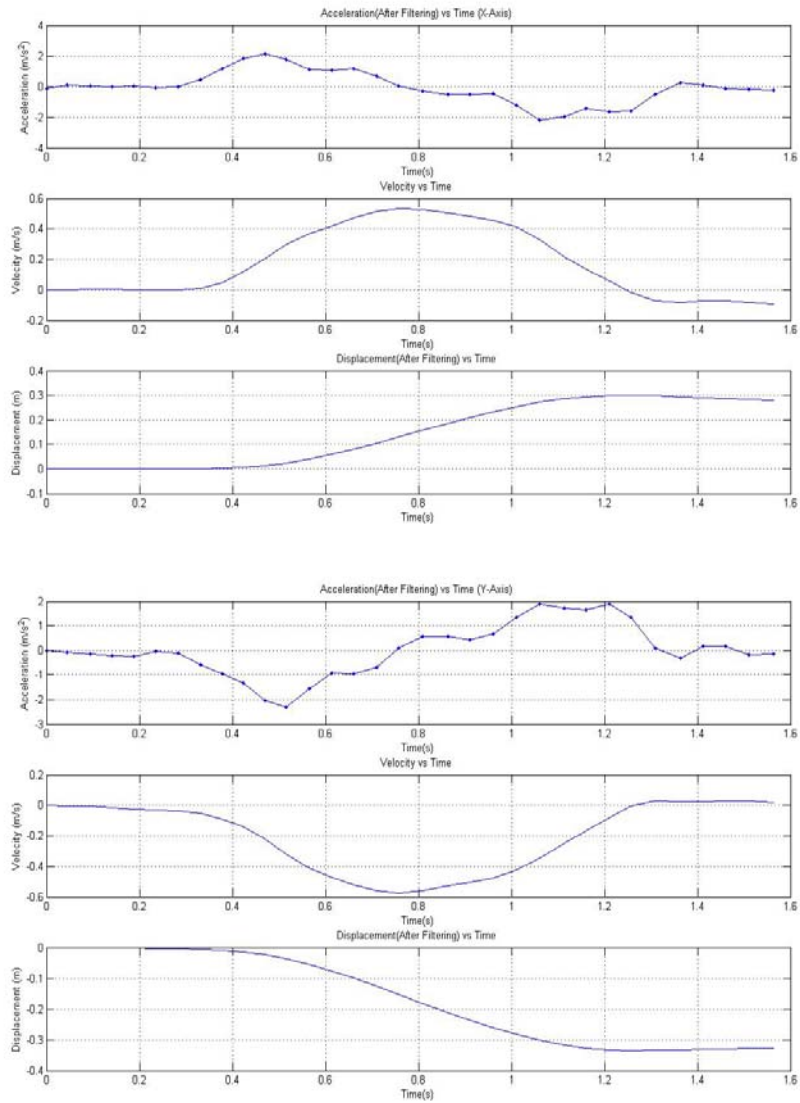
Figure 81. Acceleration data, velocity and displacement in +X and –Y (3)
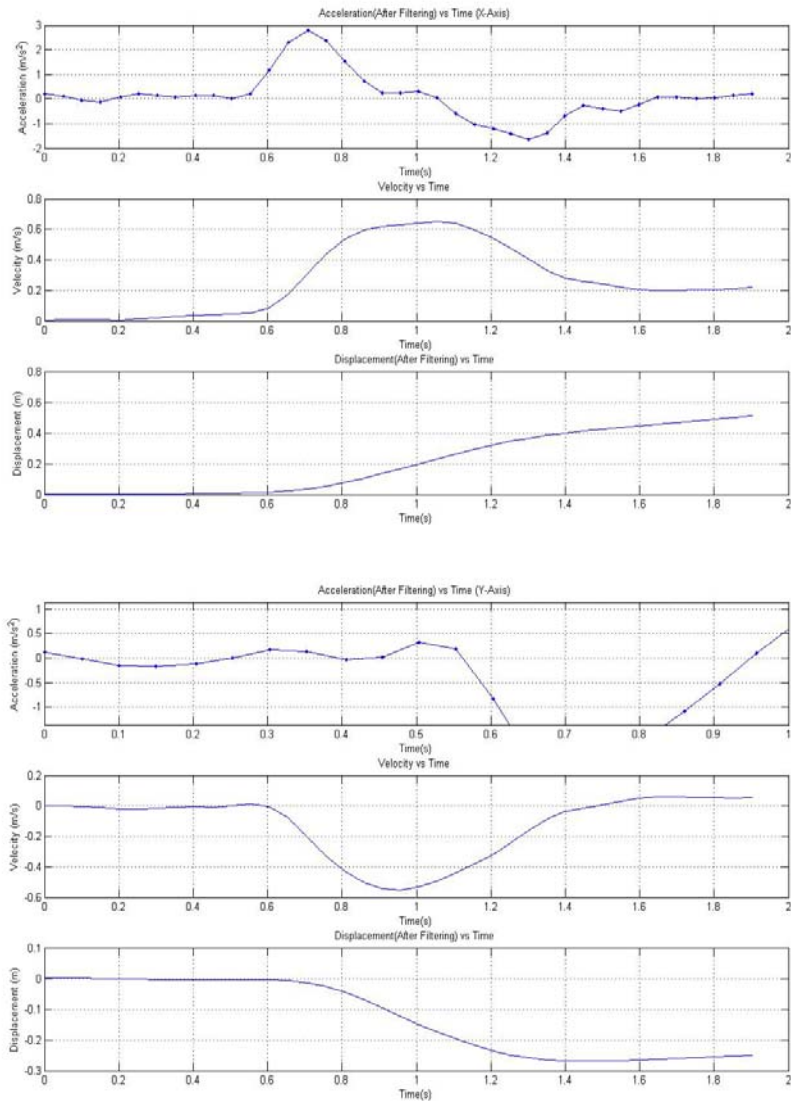
Figure 82.   Acceleration data, velocity and displacement in +X and –Y (4)

80
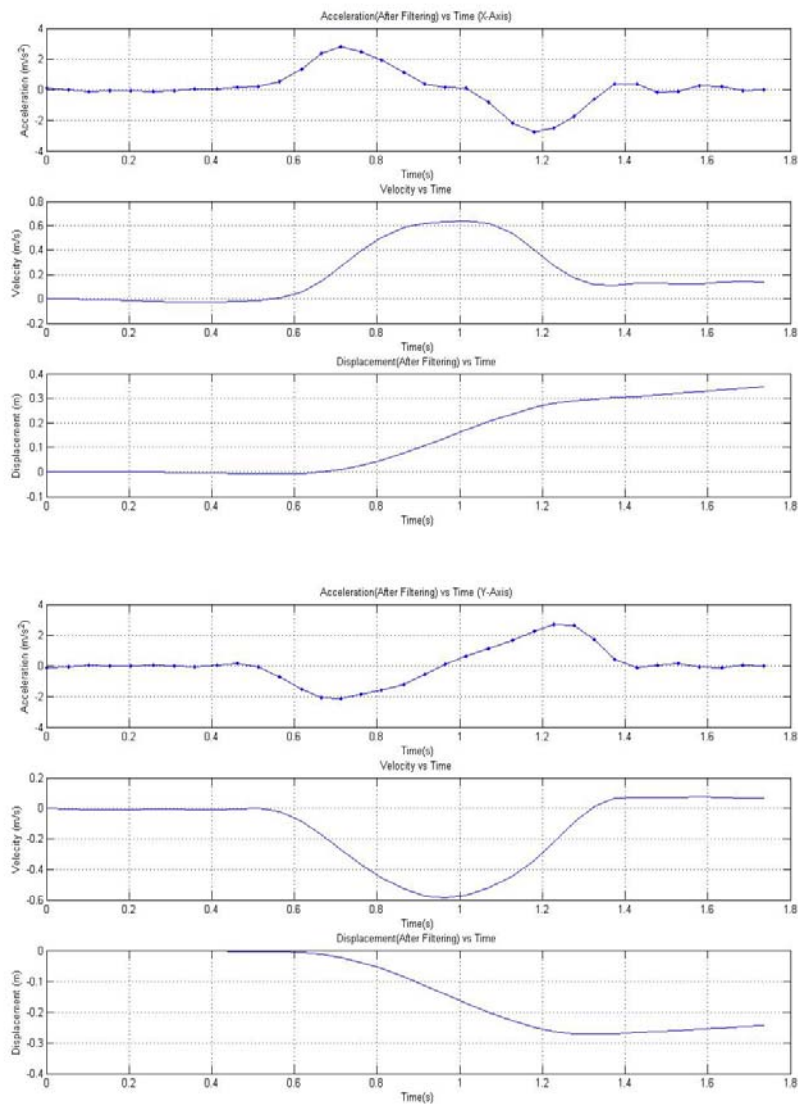
Figure 83.   Acceleration data, velocity and displacement in +X and –Y (5)

Table 10 shows the measured displacements and the deviations from the X and Y components of the real distance of 56.56 cm. in +X and –Y.

Number of tests	Measured displacement X-axis	Measured displacement Y-axis	Deviation in X-axis	Deviation in Y-axis
Test 1	40.00 cm	25.00 cm	0.00 cm	-15.00 cm
Test 2	33.60 cm	25.50 cm	-6.40 cm	-14.50 cm
Test 3	29.50 cm	33.60 cm	-10.50 cm	-6.40 cm
Test 4	43.90 cm	26.20 cm	3.90 cm	-13.80 cm
Test 5	30.00 cm	27.10 cm	-10.00 cm	-12.90 cm

Table 10.   Table 10 Components of measured displacements in +X and -Y for a real distance of 56.56 cm

The average absolute values of the deviations for the case of the movement of the accelerometer in the positive X and the negative Y directions are 6.16 cm and 12.52 cm in the positive X axis and the negative Y axis, respectively. Figure 84 shows the real displacement and the paths followed by the accelerometer and the points where the accelerometer stops.
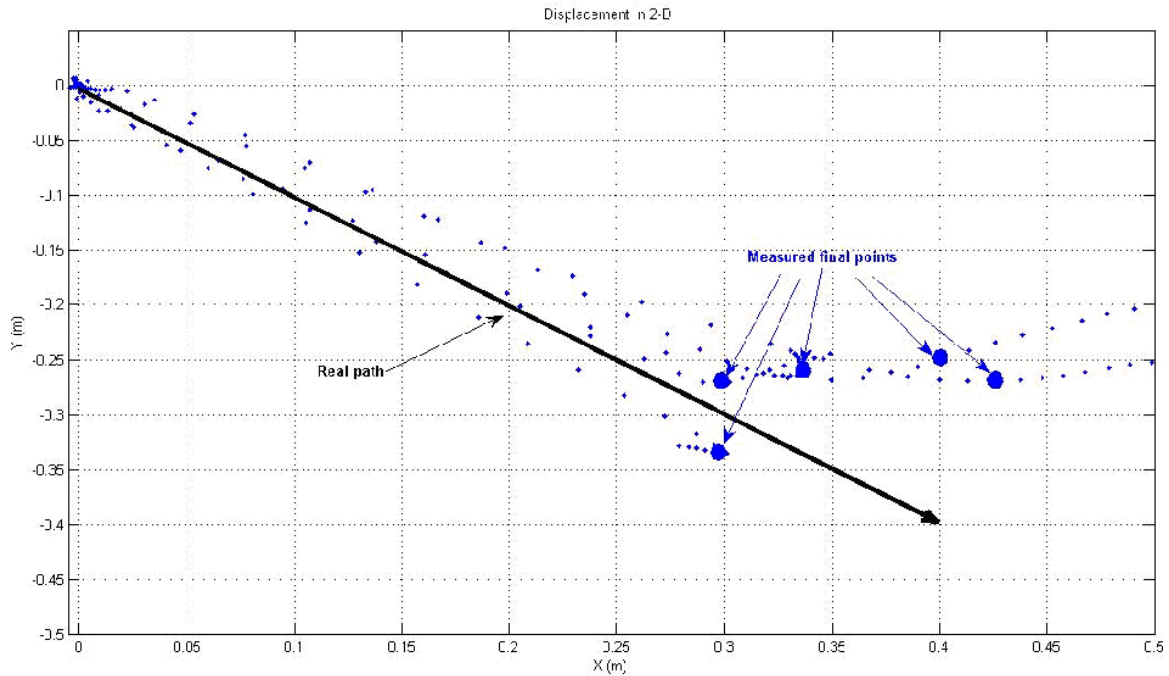
Figure 84. Real path and measured paths followed by accelerometer in +x and −Y axes

The data indicates that the accuracy of the accelerometer in measuring displacement, for a straight path, changes according to the direction of motion. Figure 85 shows a summary of these results. The ellipse indicates the expected error for straight path 2 dimensional motion in these directions.
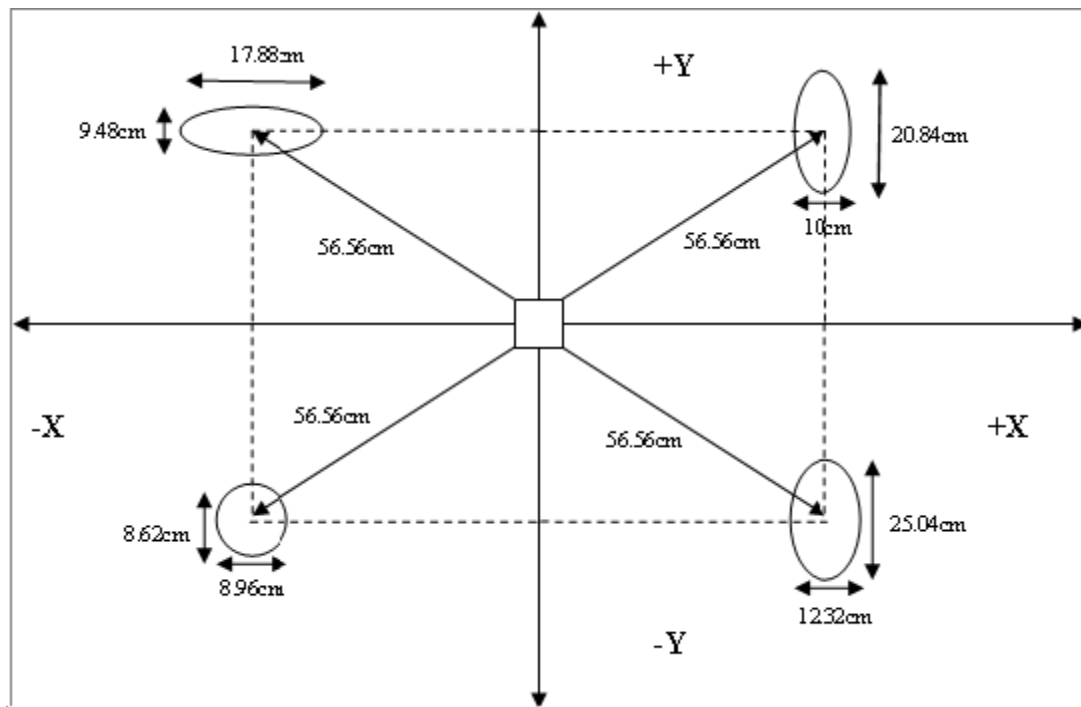
Figure 85.   The areas of which robot is expected to be after the move in a straight path of 56.56 cm.

For the curved path experiment, the Crossbow accelerometer was mounted on a leveled wheel as seen in Figure 86. The accelerometer was leveled along the lever and along the 90 degrees arc by using two bubble levels and a digital level. The radius of the arc was 40 cm. In the accelerometer reference frame, the positive X axes points in the direction of the curvilinear movement and the positive Y axes points to the center of the wheel. In other words, the accelerometer is moved in clockwise in a 90-degree arc, as seen in Figure 86, and it senses the acceleration in the positive X axes along the curved path and the acceleration in positive Y axes towards the center of the wheel.
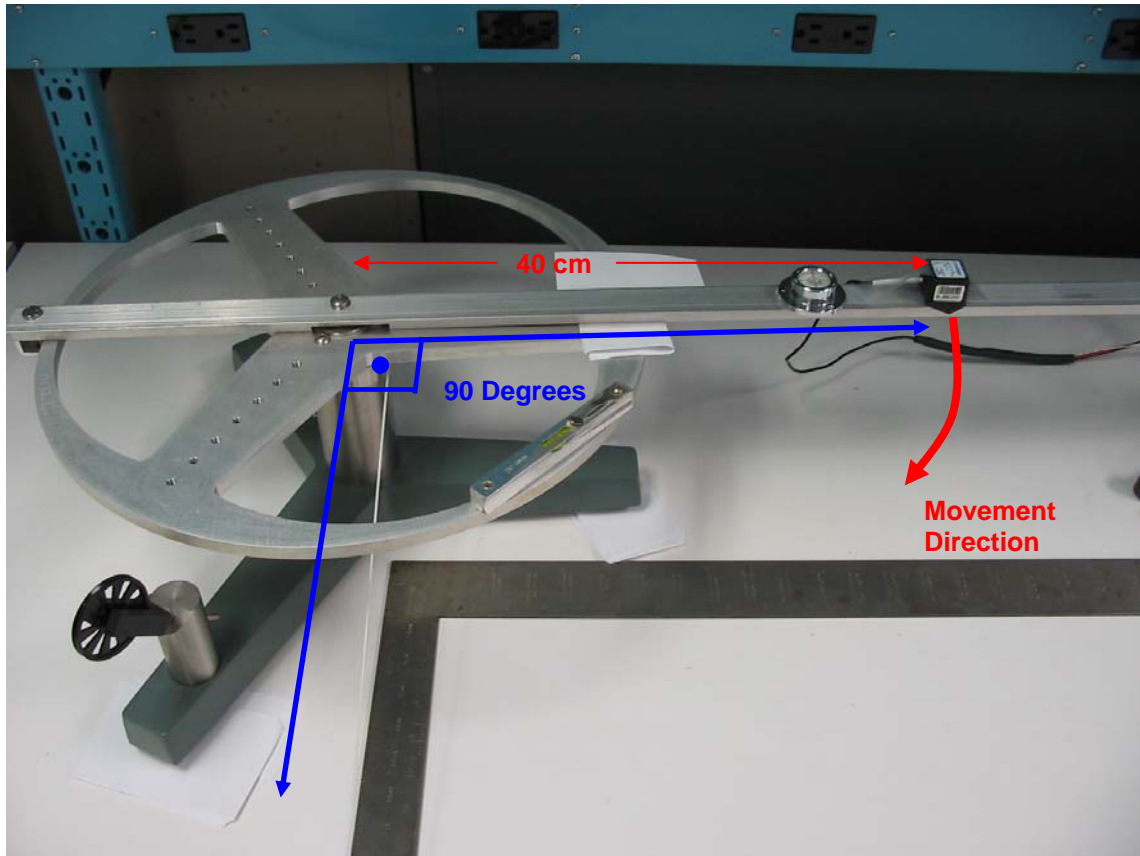
Figure 86.   Accelerometer setup for 90 degree curvilinear movement

With this set-up, the accelerometer was swung through a 90 degree arc moved clockwise in a curvilinear path. Total displacement between the starting point and ending point is measured via calculating the X and Y components of the curved path. It is known that the displacements in the X and Y axis have to be 40 cm since the radius of the arch is 40 cm and the angle between the starting and ending points is 90 degrees. Thus, the accuracy of the accelerometer in measuring the displacement for curvilinear motion can be estimated.

Five sets of experiments were conducted with different accelerations. Figures 87-96 show the acceleration data, velocity and the measured displacement in the X and Y axes.
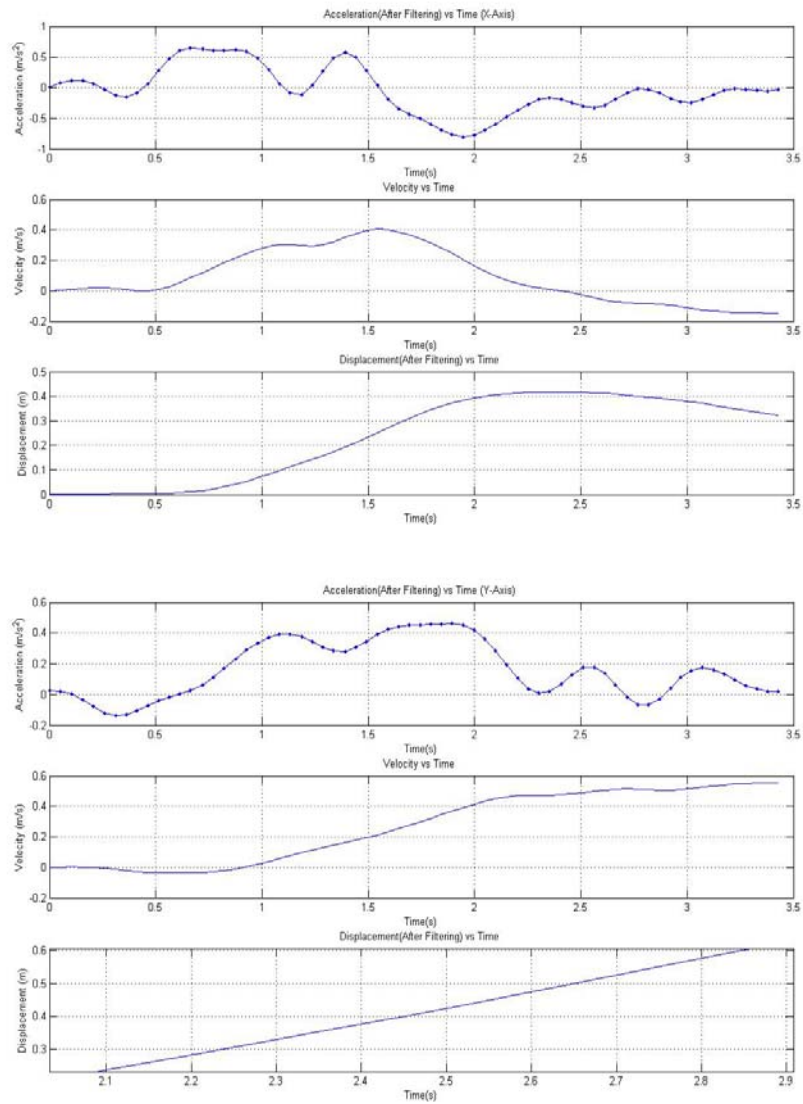
Figure 87.   Acceleration data, velocity and measured displacement in X and Y axes (1)
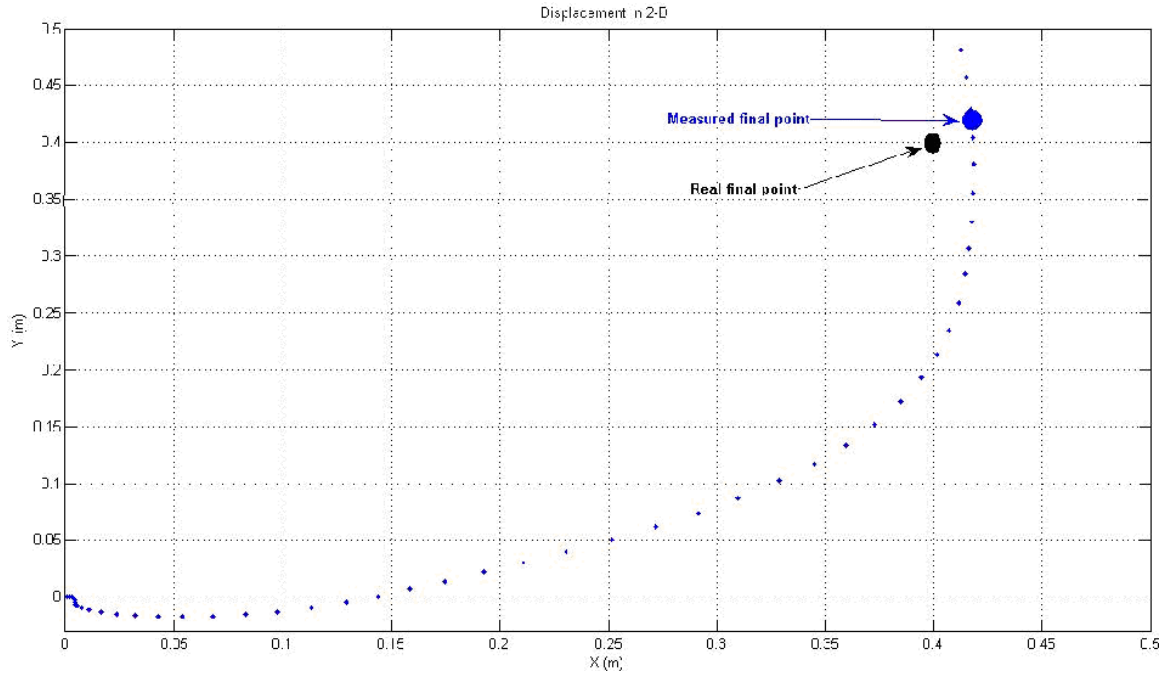
Figure 88.   Measured curvilinear path and the measured final point in X and Y axes (1)

As seen in Figure 87, along the X-axis, there is first a positive acceleration followed by a negative acceleration as the accelerometer slows down. However, it is not the same for the Y-axis. Along the Y-axis, only what is observed is the acceleration increasing as the accelerometer speeds up and acceleration decreases to zero as it slows down. Acceleration in the negative direction does not occur because the accelerometer is set at a fixed arc length by the experimental set up. In other words, r is a constant. As mentioned previously, this occurs because the positive Y-axis points towards the center of the wheel, which is in the same direction as the centripetal force. On the other hand, it is obvious that e positive or negative acceleration for the tangential (X) direction will be seen due to clockwise or counter-clockwise motion, respectively. Figures 89 through 96 summarize this data.
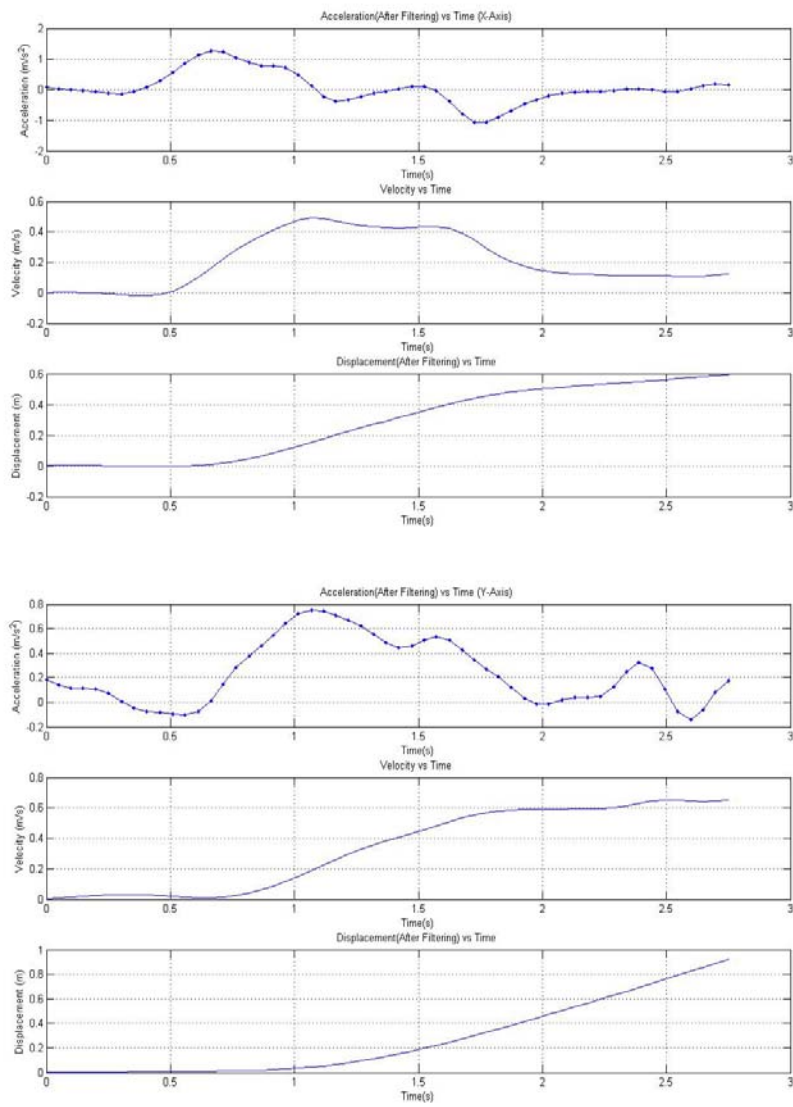
Figure 89.   Acceleration data, velocity and measured displacement in X and Y
             axes (2)
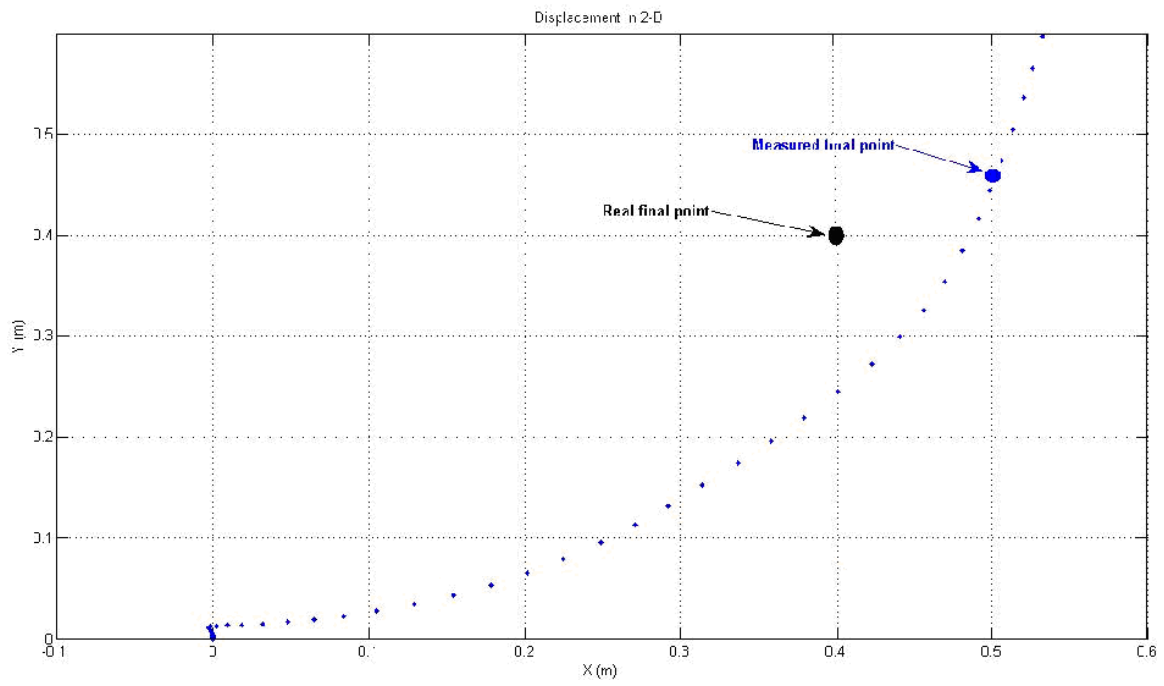
Figure 90.   Measured curvilinear path and the measured final point in X and Y
axes (2)
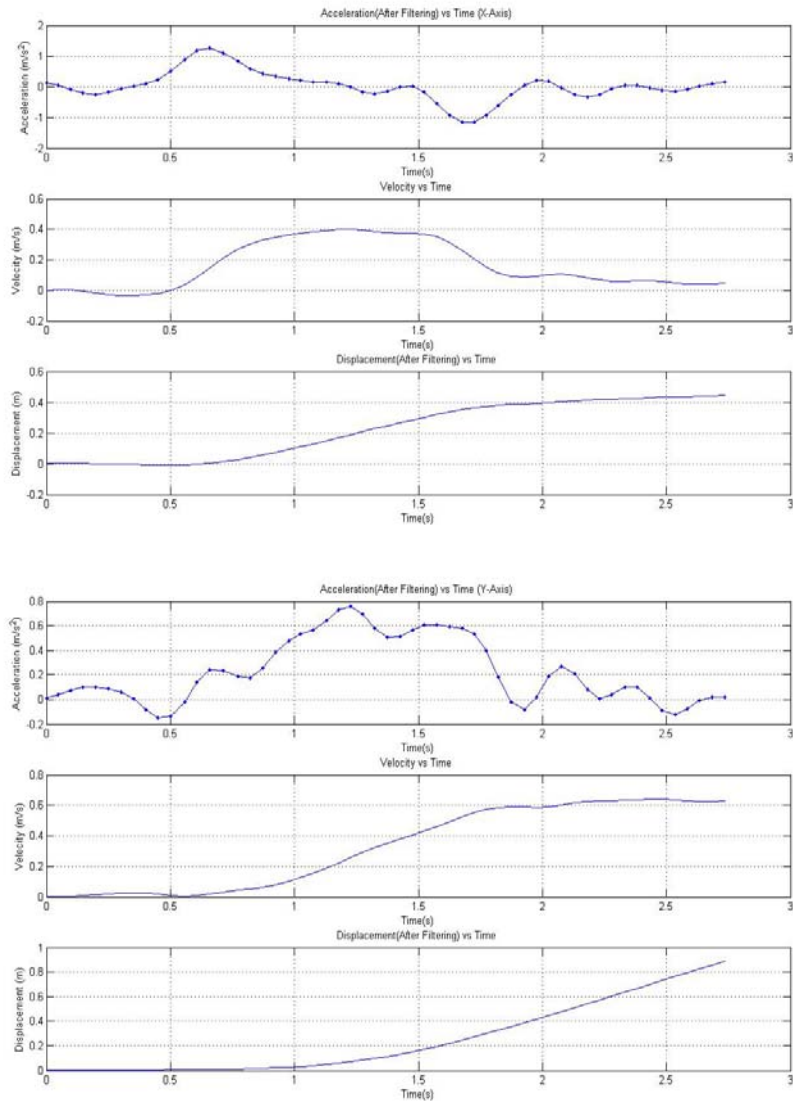
Figure 91.   Acceleration data, velocity and measured displacement in X and Y axes (3)
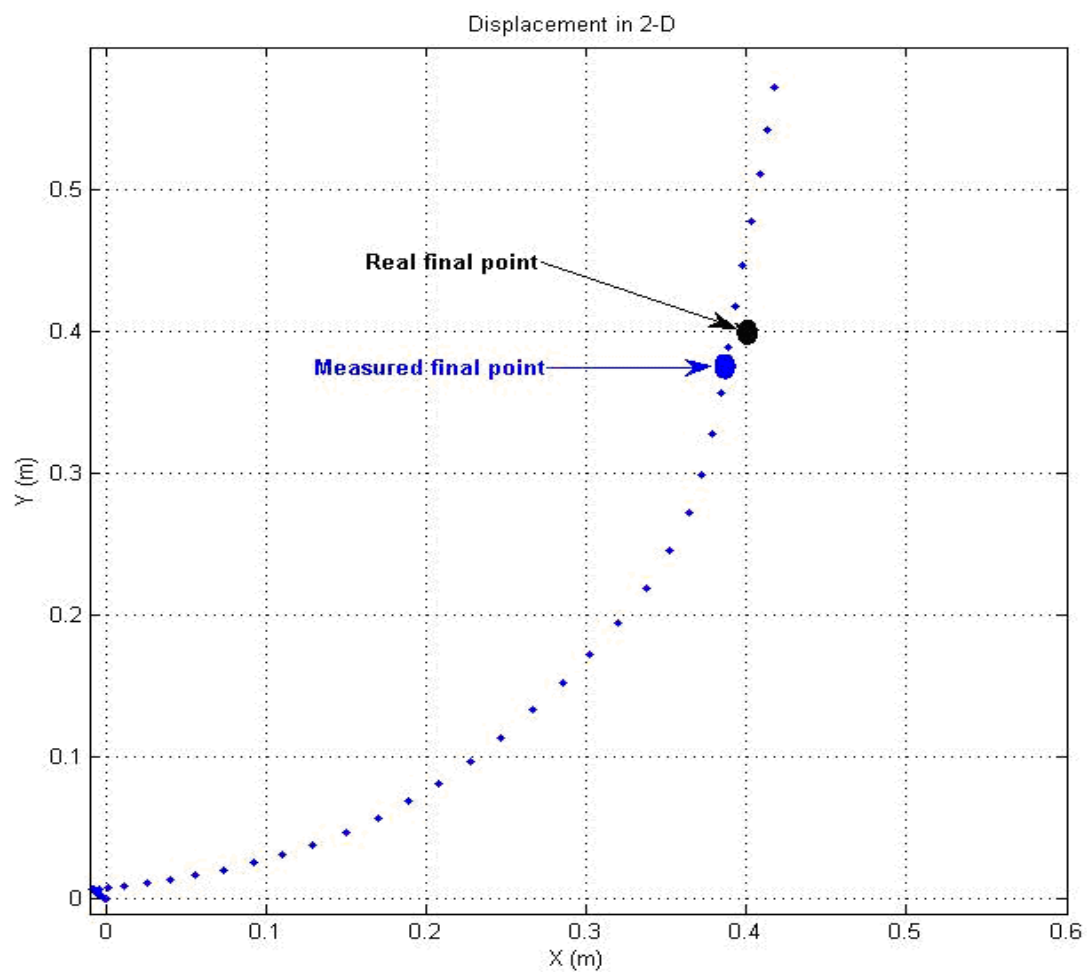
Figure 92.   Measured curvilinear path and the measured final point in X and Y axes (3)
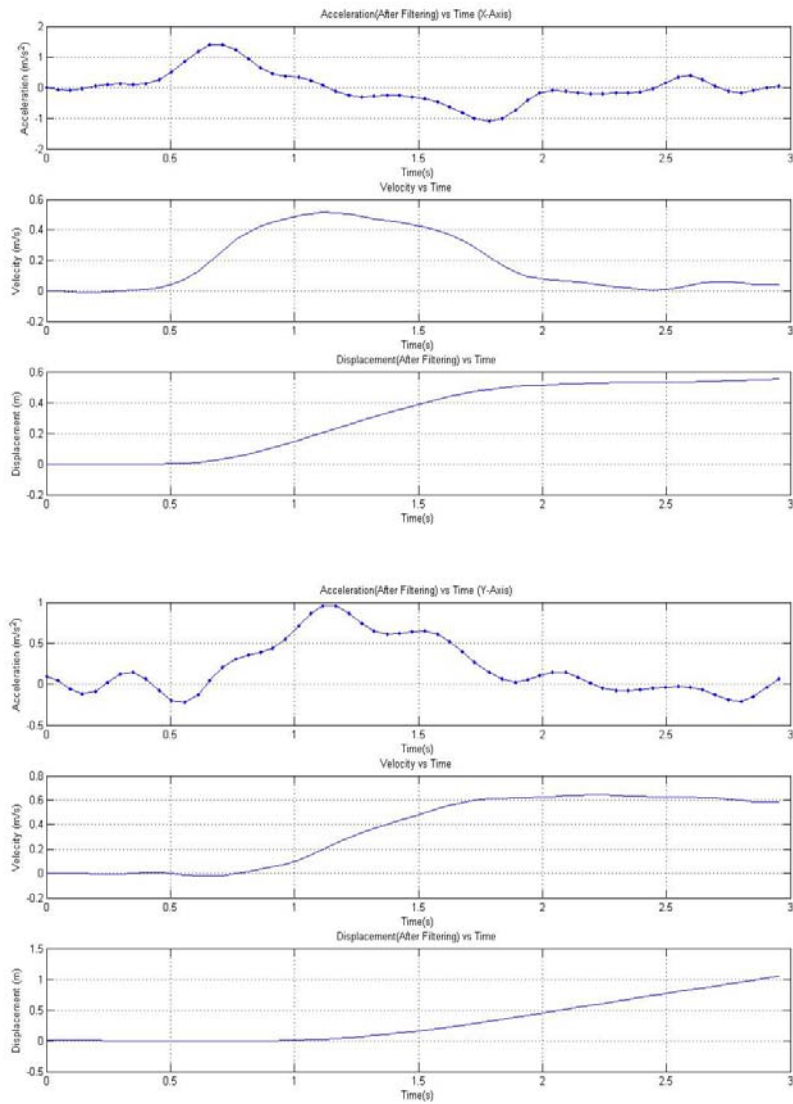
Figure 93.   Acceleration data, velocity and measured displacement in X and Y axes (4)
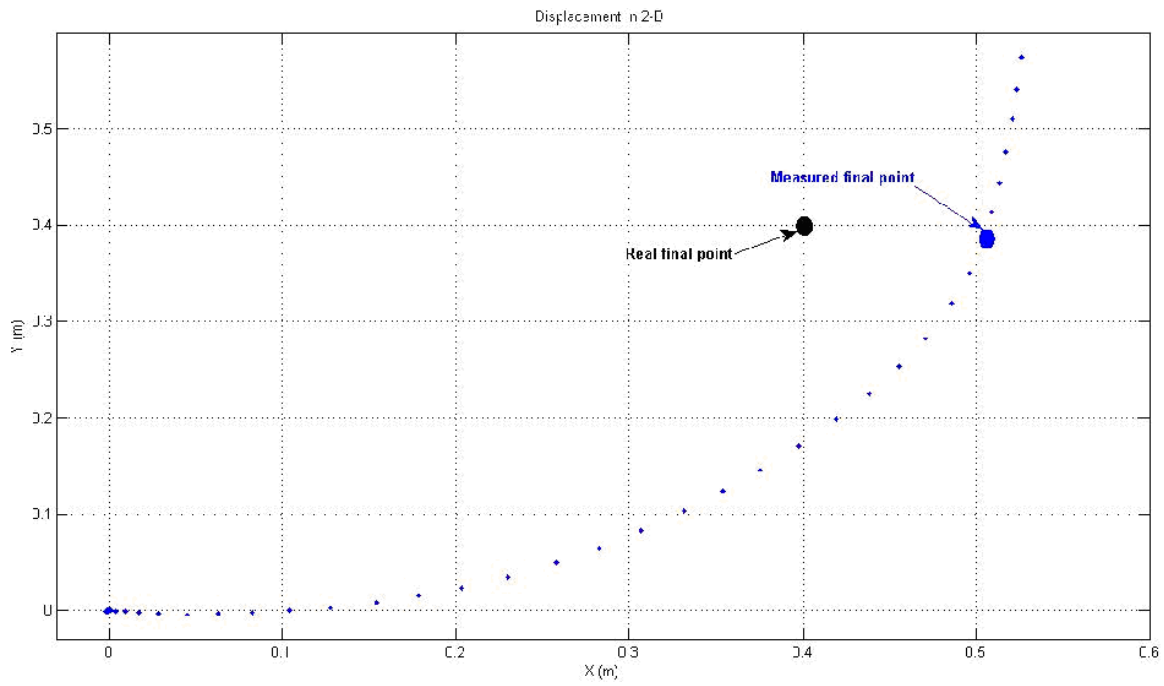
Figure 94.   Measured curvilinear path and the measured final point in X and Y
              axes (4)
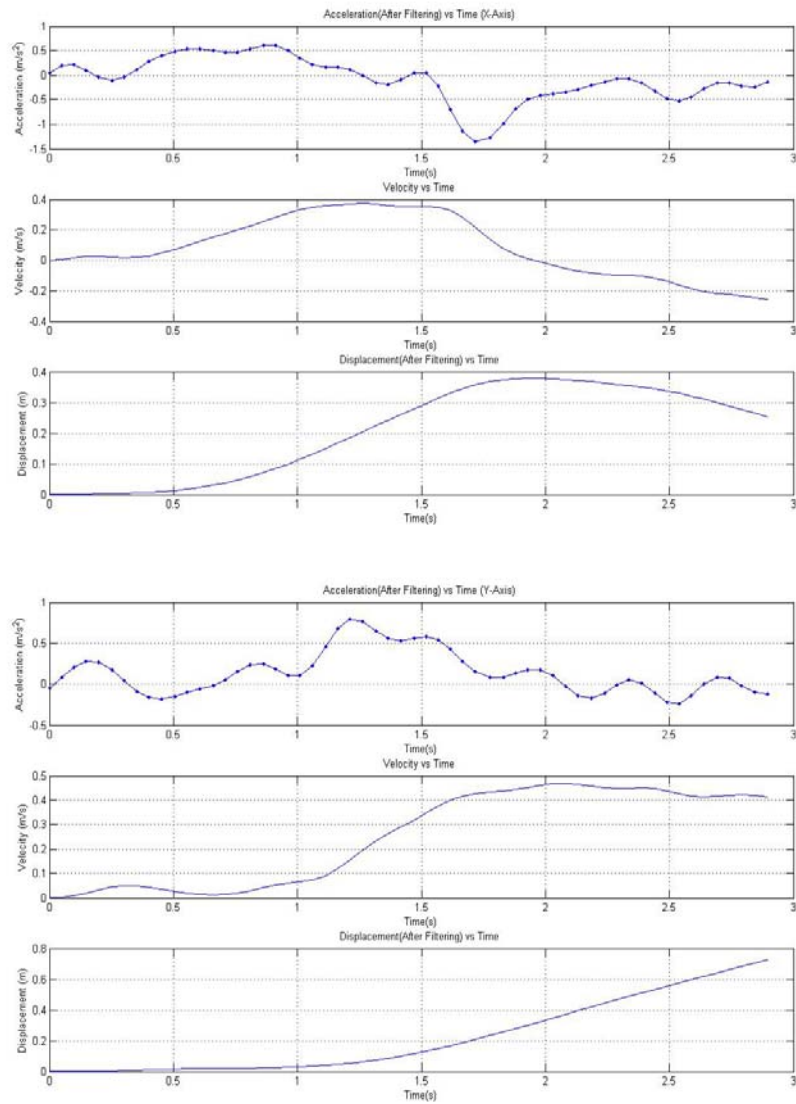
Figure 95.   Acceleration data, velocity and measured displacement in X and Y axes (5)
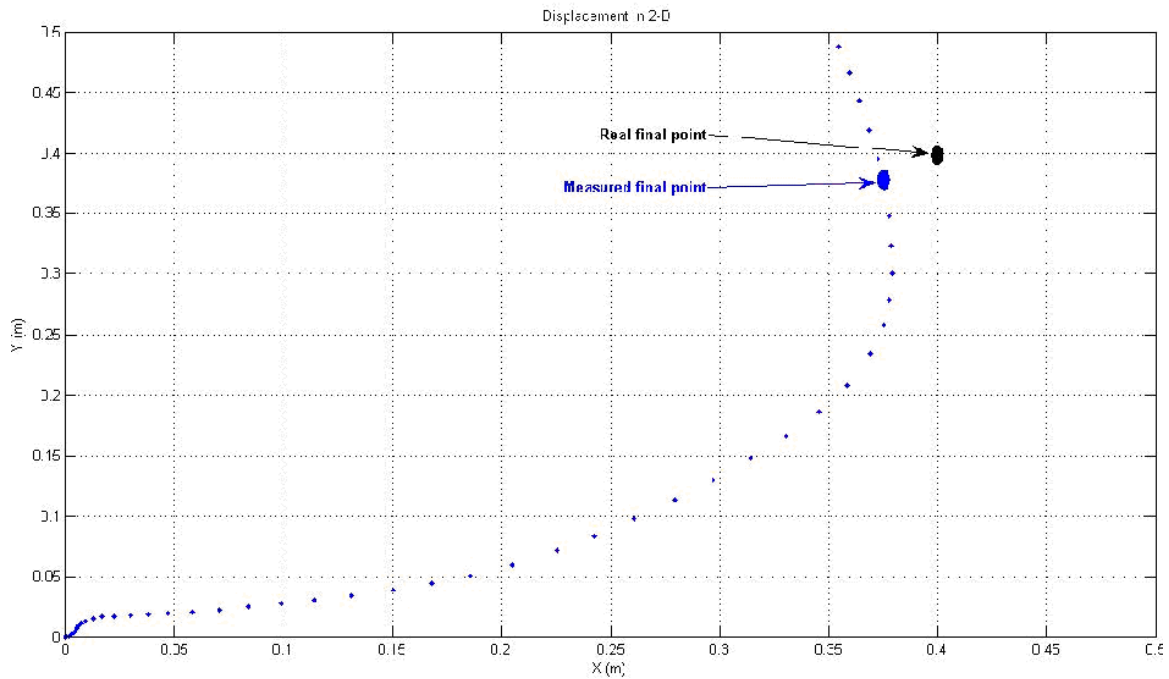
Figure 96.   Measured curvilinear path and the measured final point in X and Y
axes (5)

Table 11 summarizes the differences between real distances and the
measured displacements by the accelerometer in the X and Y directions. As
mentioned previously, the total displacement is 40 cm in both the X and Y axes.

Number of tests	Measured displacement X-axis	Measured displacement Y-axis	Deviation in X-axis	Deviation in Y-axis
Test 1	41.75 cm	33.00 cm	1.75 cm	-7.00 cm
Test 2	50.00 cm	44.00 cm	10.00 cm	4.00 cm
Test 3	38.50 cm	36.00 cm	-1.50 cm	-4.00 cm
Test 4	50.50 cm	39.00 cm	10.50 cm	-1.00 cm
Test 5	37.50 cm	38.00 cm	-2.50 cm	-2.00 cm

Table 11.   Measured displacements in X and Y axes for movement of
accelerometer in curved path

From the results shown in Table 11, it is observed that the absolute values of average errors are 5.25 cm and 3.6 cm in the X and Y axes, respectively. Figure 97 shows the results of the experiments for the movement of the accelerometer in a curved path. The ellipse shows the area that the accelerometer is expected to be found after swinging a 90 degrees arc. Figure 97 shows the dimension of the ellipse.
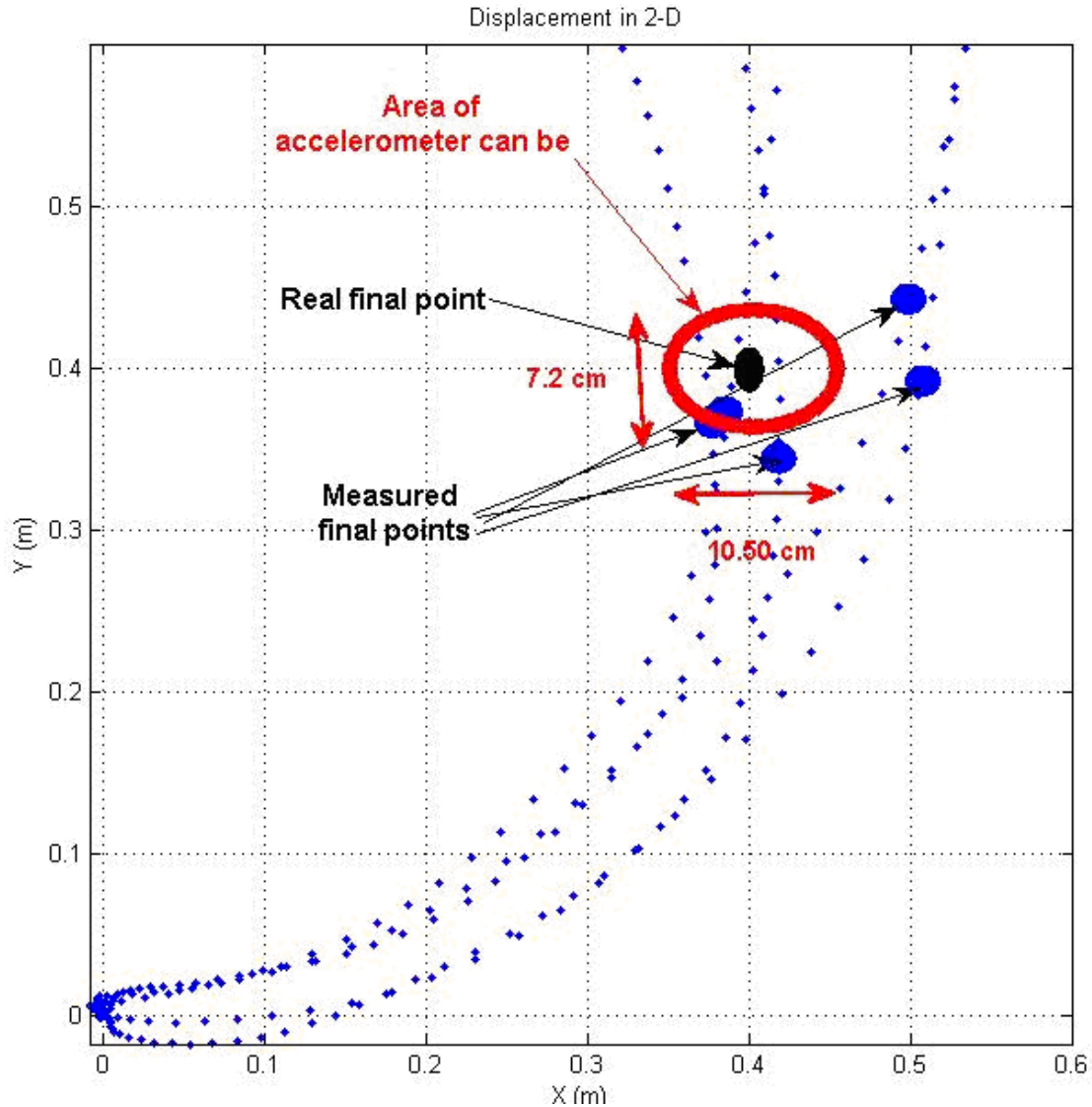
Figure 97.   The results for curvilinear motion

V.   CONCLUSION AND FUTURE RESEARCH

A.   CONCLUSION

The experimental results have provided a useful evaluation of the Crossbow three axes MEMS accelerometer for motion in 1 and 2 dimensions. The Crossbow accelerometer's use as a stand-alone INS device is determined to be marginal for distances much greater than 10 meters. Navigational errors are projected to be 0.14 m^2 for a 10 meter navigation path. This conclusion is an extrapolation of the data for a 0.4 meter move in 2 dimensions.

No-motion drift, an average of 35 meters per minute, was deemed to be unacceptable for INS navigation for a small autonomous robot, but could easily be handled by a priori knowledge of platform motion. In other words, if the robot is known not to be in motion, ignore the accelerometer out-put until there is motion. One and two dimensional data verified our displacement algorithm for movements of 0.4 meters (straight path) and 0.63 meters (curvilinear arc) to within an average error of 7 %.

High frequency noise (frequencies greater than 10 Hz) was successfully managed with Fourier transform techniques.

The performance of the accelerometer (+/-10 G) is well suited for the expected G regime of standard land based autonomous robots. INS performance will be greater enhanced as a part of a coordinated INS solution including but not limited to vision, shaft encoders.

B.   FUTURE RESEARCH

The Crossbow accelerometer should be tested on an actual robotic platform in the dead reckoning mode. Better filtering methods could improve the performance of the Crossbow accelerometer in measuring displacement via double integration of acceleration data. The Kalman Filter should be explored as a real-time filter technique for handling path projection and noise while in a dead

reckoning mode. By using a robotic arm, the Crossbow accelerometer should be moved for a certain range of accelerations to discover the best acceleration to use in case of GPS signal loss.

APPENDIX A. C-CODE

```
/*****************************************************
** Dynamic C Code Written for the Z-World     **
** BL2000 Microcontroller to read Acceleration  **
** Data from the Crossbow accelerometer.      **
**                           **
** Written by RM Harkins, Modified by E Emir   **
** Date: 10 September 2008            **
** Rev: 1                     **
**                           **
** Usage: Compile to the BL2000 and run      **
** Output: A text file to the connected computer **
*****************************************************/
Void main()
{
auto float voltagex, voltagey, voltagez, accx, accy, accz, t;
auto float vf, vi, d, t0;
int x;

//auto int t;
auto char s[80];
float xsum, ysum, zsum, xref, yref, zref, deltat;
float vy, vysum, vysumave;
brdInit();

xsum = 0;
ysum = 0;
zsum = 0;

/*Here we read the data from the accelerometer X, Y and Z to *
* get average values for the accelerations in each. I helps    *
* us find what zero g is for each axis before we collect data   */

for(x = 0; x<100; x++){
voltagex = anaInVolts(0);
xsum = xsum + voltagex;
voltagey = anaInVolts(1);
ysum = ysum + voltagey;
voltagez = anaInVolts(2);
zsum = zsum + voltagez;
}
```

99

```
xref = xsum/x;
yref = ysum/x;
zref = zsum/x;

printf("Ave Steps %d %9.4f %9.4f %9.4f\n", x, xref, yref, zref);
printf("------------------------------------------------------\n\n");

t0 = MS_TIMER;
vi = 0;
x = 0;
vysum = 0;
vysumave = 0;
accx = 0;
accy = 0;
accz = 0;

while(1){
x++;
t = MS_TIMER;
t = (t - t0)/1000;
voltagex = anaInVolts(0);
accx = (9.8*(voltagex-xref))/0.2;
voltagey = anaInVolts(1);
accy = (9.8*(voltagey-yref))/0.2;
deltat = t/(float)x;
voltagez = anaInVolts(2);
accz = (9.8*(voltagez-zref))/0.2;

printf("%9.4f %9.4f %9.4f %9.4f %9.4f %9.4f %9.4f\n", t, voltagex, accx,
voltagey, accy, voltagez, accz);



}}
```

APPENDIX B. MATLAB CODE

```
/*****************************************************
** MATLAB Code                      **
** Written for filtering data from the Crossbow   **
** accelerometer and                **
** integration of acceleration data to calculate   **
** the velocity and displacement         **
**.                               **
**                        **
** Written by E Emir                 **
** Date: 10 August 2008              **
** Rev: 1                      **
**                        **
** Output: Plots for instantaneous velocity and  **
** Instantaneous displacement versus time     **
*****************************************************/


clear all
s= load('45s_balanced_1.txt');
a=s(:,3);
t=s(:,1);
vel(1)=0;
disp(1)=0;
%%Here we integrate the acceleration to calculate the velocity and
%%integrate the velocity to get the displacement by using Euler method.
k=length(a)-1;
for n=1:k
  vel(n+1)=(t(n+1)-t(n))*(a(n+1)+a(n))/2+vel(n);
  disp(n+1)=(t(n+1)-t(n))*(vel(n+1)+vel(n))/2+disp(n);
end
figure(1)
subplot(3,1,1),
plot(t,a,'b.-'),grid
title('Acceleration vs Time ');
xlabel('Time(s)');
ylabel('Acceleration (m/s^2)');
subplot(3,1,2), plot(t,vel),grid
title('Velocity vs Time ');
xlabel('Time(s)');
ylabel('Velocity (m/s)');
subplot(3,1,3), plot(t,disp),grid
title('Displacement vs Time ');
```

```matlab
xlabel('Time(s)');
ylabel('Displacement (m)');
%% In order to remove the noise in high frequencies we transform the
%%acceleration  data  to  frequency  domain  by  using  Fourier
transformation.
f=fft(a);
figure(2)
subplot(3,1,1)
plot(abs(f)) % Acceleration data in frequency domain before filtering.
title('Acceleration in Frequency Domain ');
NN=10;
% Filtering the noise in frequencies higher than 10 Hz.
f(NN:(length(a)-NN))=0;
subplot(3,1,2)
% Here the filtered data is shown in freq domain
plot(abs(f))
e=real(ifft(f));
% Transforming data back to the time domain by using Inverse Fourier
transformation.
subplot(3,1,3)
% Filtered data is shown in time domain
plot(t,e), grid
title('Acceleration vs Time ');
xlabel('Time(s)');
ylabel('Acceleration (m/s^2)');
h=sum(e)/length(e)
% For integration part, the filtered accelerometer data is used.
a=e;
t=s(:,1);
vel(1)=0;
disp(1)=0;
k=length(a)-1;
for n=1:k
  vel(n+1)=(t(n+1)-t(n))*(a(n+1)+a(n))/2+vel(n);
  disp(n+1)=(t(n+1)-t(n))*(vel(n+1)+vel(n))/2+disp(n);
end
figure(3)
subplot(3,1,1),
plot(t,a,'b.-'),grid
title('Acceleration(After Filtering) vs Time ');
xlabel('Time(s)');
ylabel('Acceleration (m/s^2)');
subplot(3,1,2), plot(t,vel),grid
% Plot shows instantaneous velocity versus time
title('Velocity vs Time ');
```

```matlab
xlabel('Time(s)');
ylabel('Velocity (m/s)');
subplot(3,1,3), plot(t,disp),grid
% Here plot shows displacement versus time
title('Displacement(After Filtering) vs Time ');
xlabel('Time(s)');
ylabel('Displacement (m)');
```

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APPENDIX C. ACCELERATION DATA OUTPUT

X(1)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0800	0.1297	1.8284	0.0951	2.1608	-0.2355
0.0470	2.0700	-0.3596	1.8234	-0.1486	2.1608	-0.2355
0.0970	2.0750	-0.1149	1.8234	-0.1486	2.1658	0.0098
0.1430	2.0700	-0.3596	1.8284	0.0951	2.1658	0.0098
0.1900	2.0750	-0.1149	1.8284	0.0951	2.1658	0.0098
0.2370	2.0750	-0.1149	1.8284	0.0951	2.1658	0.0098
0.2840	2.0800	0.1297	1.8284	0.0951	2.1658	0.0098
0.3310	2.0750	-0.1149	1.8284	0.0951	2.1658	0.0098
0.3810	2.0750	-0.1149	1.8234	-0.1486	2.1608	-0.2355
0.4310	2.0700	-0.3596	1.8284	0.0951	2.1608	-0.2355
0.4860	2.0800	0.1297	1.8234	-0.1486	2.1658	0.0098
0.5360	2.0800	0.1297	1.8234	-0.1486	2.1658	0.0098
0.5860	2.0750	-0.1149	1.8234	-0.1486	2.1658	0.0098
0.6380	2.0800	0.1297	1.8284	0.0951	2.1658	0.0098
0.6930	2.0850	0.3744	1.8234	-0.1486	2.1658	0.0098
0.7420	2.0700	-0.3596	1.8234	-0.1486	2.1658	0.0098
0.7950	2.0800	0.1297	1.8234	-0.1486	2.1658	0.0098
0.8490	2.0750	-0.1149	1.8184	-0.3923	2.1608	-0.2355
0.8990	2.0750	-0.1149	1.8234	-0.1486	2.1658	0.0098
0.9530	2.0750	-0.1149	1.8234	-0.1486	2.1608	-0.2355
1.0030	2.0750	-0.1149	1.8284	0.0951	2.1708	0.2551
1.0520	2.0750	-0.1149	1.8184	-0.3923	2.1658	0.0098
1.1010	2.0750	-0.1149	1.8334	0.3389	2.1658	0.0098
1.1540	2.0800	0.1297	1.8284	0.0951	2.1608	-0.2355
1.2080	2.0800	0.1297	1.8234	-0.1486	2.1658	0.0098
1.2580	2.0750	-0.1149	1.8234	-0.1486	2.1658	0.0098
1.3100	2.0800	0.1297	1.8234	-0.1486	2.1658	0.0098
1.3650	2.0750	-0.1149	1.8284	0.0951	2.1708	0.2551
1.4150	2.0700	-0.3596	1.8234	-0.1486	2.1708	0.2551
1.4670	2.0750	-0.1149	1.8284	0.0951	2.1608	-0.2355
1.5210	2.0750	-0.1149	1.8334	0.3389	2.1658	0.0098
1.5710	2.0750	-0.1149	1.8284	0.0951	2.1658	0.0098
1.6240	2.0750	-0.1149	1.8234	-0.1486	2.1658	0.0098
1.6740	2.0300	-2.3170	1.8284	0.0951	2.1708	0.2551
1.7220	2.0151	-3.0510	1.8135	-0.6361	2.1708	0.2551
1.7710	2.0151	-3.0510	1.8284	0.0951	2.1808	0.7459
1.8190	2.0101	-3.2957	1.8135	-0.6361	2.1758	0.5005
1.8680	2.0300	-2.3170	1.8334	0.3389	2.1658	0.0098
1.9210	2.0450	-1.5830	1.8433	0.8263	2.1557	-0.4809
1.9730	2.0700	-0.3596	1.8284	0.0951	2.1557	-0.4809
2.0230	2.0950	0.8637	1.8035	-1.1235	2.1608	-0.2355
2.0730	2.1349	2.8211	1.8234	-0.1486	2.1808	0.7459
2.1270	2.1449	3.3105	1.8234	-0.1486	2.1608	-0.2355
2.1760	2.1449	3.3105	1.8234	-0.1486	2.1658	0.0098
2.2250	2.1349	2.8211	1.8184	-0.3923	2.1758	0.5005
2.2730	2.1199	2.0871	1.8135	-0.6361	2.1708	0.2551
2.3240	2.0850	0.3744	1.8184	-0.3923	2.1708	0.2551
2.3780	2.0850	0.3744	1.8284	0.0951	2.1708	0.2551
2.4280	2.0900	0.6191	1.8284	0.0951	2.1708	0.2551
2.4760	2.0850	0.3744	1.8234	-0.1486	2.1708	0.2551
2.5270	2.0900	0.6191	1.8234	-0.1486	2.1708	0.2551
2.5810	2.0650	-0.6043	1.8234	-0.1486	2.1658	0.0098
2.6310	2.0700	-0.3596	1.8234	-0.1486	2.1658	0.0098
2.6800	2.0750	-0.1149	1.8284	0.0951	2.1708	0.2551
2.7320	2.0750	-0.1149	1.8234	-0.1486	2.1658	0.0098
2.7870	2.0800	0.1297	1.8284	0.0951	2.1708	0.2551
2.8360	2.0750	-0.1149	1.8284	0.0951	2.1608	-0.2355
2.8880	2.0750	-0.1149	1.8234	-0.1486	2.1658	0.0098
2.9430	2.0850	0.3744	1.8284	0.0951	2.1708	0.2551
2.9940	2.0800	0.1297	1.8284	0.0951	2.1658	0.0098
3.0520	2.0750	-0.1149	1.8234	-0.1486	2.1658	0.0098
3.1010	2.0750	-0.1149	1.8234	-0.1486	2.1608	-0.2355
3.1540	2.0750	-0.1149	1.8284	0.0951	2.1658	0.0098
3.2090	2.0800	0.1297	1.8284	0.0951	2.1658	0.0098
3.2590	2.0800	0.1297	1.8284	0.0951	2.1658	0.0098
3.3100	2.0750	-0.1149	1.8234	-0.1486	2.1658	0.0098

X(2)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0800	0.1248	1.8284	0.0927	2.1708	0.2355
0.1290	2.0750	-0.1198	1.8234	-0.1510	2.1608	-0.2551
0.2610	2.0750	-0.1198	1.8234	-0.1510	2.1658	-0.0098
0.3930	2.0800	0.1248	1.8284	0.0927	2.1708	0.2355
0.4890	2.0750	-0.1198	1.8284	0.0927	2.1608	-0.2551
0.5390	2.0800	0.1248	1.8234	-0.1510	2.1608	-0.2551
0.5900	2.0750	-0.1198	1.8234	-0.1510	2.1658	-0.0098
0.6390	2.0750	-0.1198	1.8234	-0.1510	2.1658	-0.0098
0.6890	2.0750	-0.1198	1.8284	0.0927	2.1658	-0.0098
0.7400	2.0750	-0.1198	1.8284	0.0927	2.1608	-0.2551
0.7930	2.0750	-0.1198	1.8284	0.0927	2.1708	0.2355
0.8420	2.0750	-0.1198	1.8334	0.3364	2.1658	-0.0098
0.8920	2.0750	-0.1198	1.8334	0.3364	2.1658	-0.0098
0.9440	2.0800	0.1248	1.8334	0.3364	2.1658	-0.0098
0.9970	2.0800	0.1248	1.8284	0.0927	2.1658	-0.0098
1.0470	2.0750	-0.1198	1.8234	-0.1510	2.1658	-0.0098
1.0980	2.0750	-0.1198	1.8284	0.0927	2.1658	-0.0098
1.1540	2.0800	0.1248	1.8284	0.0927	2.1708	0.2355
1.2030	2.0750	-0.1198	1.8234	-0.1510	2.1658	-0.0098
1.2540	2.0800	0.1248	1.8234	-0.1510	2.1658	-0.0098
1.3090	2.0750	-0.1198	1.8234	-0.1510	2.1658	-0.0098
1.3590	2.0800	0.1248	1.8284	0.0927	2.1658	-0.0098
1.4080	2.0750	-0.1198	1.8334	0.3364	2.1658	-0.0098
1.4610	2.0700	-0.3645	1.8334	0.3364	2.1608	-0.2551
1.5160	2.0750	-0.1198	1.8284	0.0927	2.1658	-0.0098
1.5670	2.0700	-0.3645	1.8234	-0.1510	2.1658	-0.0098
1.6210	2.0750	-0.1198	1.8284	0.0927	2.1658	-0.0098
1.6710	2.0800	0.1248	1.8284	0.0927	2.1658	-0.0098
1.7210	2.0700	-0.3645	1.8234	-0.1510	2.1708	0.2355
1.7740	2.0800	0.1248	1.8234	-0.1510	2.1608	-0.2551
1.8270	2.0800	0.1248	1.8234	-0.1510	2.1658	-0.0098
1.8780	2.0800	0.1248	1.8284	0.0927	2.1708	0.2355
1.9310	2.0750	-0.1198	1.8234	-0.1510	2.1658	-0.0098
1.9810	2.0700	-0.3645	1.8284	0.0927	2.1658	-0.0098
2.0310	2.0800	0.1248	1.8284	0.0927	2.1608	-0.2551
2.0790	2.0800	0.1248	1.8234	-0.1510	2.1658	-0.0098
2.1330	2.0800	0.1248	1.8284	0.0927	2.1658	-0.0098
2.1880	2.0750	-0.1198	1.8284	0.0927	2.1658	-0.0098
2.2400	2.0750	-0.1198	1.8234	-0.1510	2.1658	-0.0098
2.2940	2.0700	-0.3645	1.8284	0.0927	2.1658	-0.0098
2.3440	2.0850	0.3695	1.8234	-0.1510	2.1658	-0.0098
2.3950	2.0750	-0.1198	1.8234	-0.1510	2.1708	0.2355
2.4480	2.0700	-0.3645	1.8184	-0.3948	2.1708	0.2355
2.5110	2.0650	-0.6092	1.8284	0.0927	2.1658	-0.0098
2.5600	2.0350	-2.0772	1.8383	0.5802	2.1608	-0.2551
2.6090	2.0300	-2.3219	1.8135	-0.6385	2.1808	0.7263
2.6570	2.0251	-2.5666	1.8184	-0.3948	2.1708	0.2355
2.7070	2.0400	-1.8325	1.8433	0.8239	2.1608	-0.2551
2.7590	2.0500	-1.3432	1.8334	0.3364	2.1608	-0.2551
2.8140	2.0500	-1.3432	1.8383	0.5802	2.1658	-0.0098
2.8640	2.0650	-0.6092	1.8135	-0.6385	2.1658	-0.0098
2.9160	2.0950	0.8588	1.8284	0.0927	2.1658	-0.0098
2.9660	2.1049	1.3482	1.8234	-0.1510	2.1708	0.2355
3.0150	2.1049	1.3482	1.8234	-0.1510	2.1608	-0.2551
3.0640	2.1099	1.5929	1.8334	0.3364	2.1808	0.7263
3.1150	2.1099	1.5929	1.8483	1.0676	2.1557	-0.5005
3.1660	2.1299	2.5715	1.8234	-0.1510	2.1557	-0.5005
3.2150	2.1149	1.8375	1.8234	-0.1510	2.1658	-0.0098
3.2650	2.1000	1.1035	1.8234	-0.1510	2.1608	-0.2551
3.3140	2.0950	0.8588	1.8284	0.0927	2.1658	-0.0098
3.3650	2.0900	0.6142	1.8284	0.0927	2.1658	-0.0098
3.4180	2.0850	0.3695	1.8234	-0.1510	2.1658	-0.0098
3.4680	2.0800	0.1248	1.8234	-0.1510	2.1708	0.2355
3.5170	2.0700	-0.3645	1.8234	-0.1510	2.1658	-0.0098
3.5700	2.0850	0.3695	1.8284	0.0927	2.1658	-0.0098
3.6180	2.0750	-0.1198	1.8184	-0.3948	2.1658	-0.0098
3.6670	2.0750	-0.1198	1.8284	0.0927	2.1708	0.2355
3.7160	2.0850	0.3695	1.8284	0.0927	2.1708	0.2355
3.7650	2.0800	0.1248	1.8334	0.3364	2.1658	-0.0098
3.8150	2.0850	0.3695	1.8234	-0.1510	2.1708	0.2355
3.8650	2.0750	-0.1198	1.8284	0.0927	2.1658	-0.0098
3.9200	2.0700	-0.3645	1.8334	0.3364	2.1658	-0.0098
3.9690	2.0750	-0.1198	1.8234	-0.1510	2.1708	0.2355
4.0180	2.0650	-0.6092	1.8284	0.0927	2.1608	-0.2551
4.0680	2.0750	-0.1198	1.8284	0.0927	2.1658	-0.0098
4.1220	2.0800	0.1248	1.8234	-0.1510	2.1658	-0.0098
4.1710	2.0800	0.1248	1.8284	0.0927	2.1658	-0.0098
4.2200	2.0800	0.1248	1.8234	-0.1510	2.1608	-0.2551

X(3)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0750	-0.0734	1.8284	0.1098	2.1658	-0.0368
0.0380	2.0750	-0.0734	1.8284	0.1098	2.1608	-0.2821
0.0790	2.0750	-0.0734	1.8234	-0.1340	2.1608	-0.2821
0.1200	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
0.1620	2.0700	-0.3181	1.8284	0.1098	2.1708	0.2086
0.2030	2.0800	0.1713	1.8284	0.1098	2.1708	0.2086
0.2450	2.0750	-0.0734	1.8184	-0.3777	2.1658	-0.0368
0.2860	2.0800	0.1713	1.8284	0.1098	2.1658	-0.0368
0.3280	2.0800	0.1713	1.8234	-0.1340	2.1658	-0.0368
0.3690	2.0800	0.1713	1.8284	0.1098	2.1708	0.2086
0.4110	2.0800	0.1713	1.8284	0.1098	2.1708	0.2086
0.4530	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
0.4950	2.0750	-0.0734	1.8284	0.1098	2.1708	0.2086
0.5380	2.0750	-0.0734	1.8234	-0.1340	2.1708	0.2086
0.5790	2.0750	-0.0734	1.8284	0.1098	2.1708	0.2086
0.6210	2.0800	0.1713	1.8234	-0.1340	2.1608	-0.2821
0.6620	2.0800	0.1713	1.8284	0.1098	2.1658	-0.0368
0.7030	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
0.7450	2.0750	-0.0734	1.8334	0.3535	2.1658	-0.0368
0.7860	2.0800	0.1713	1.8284	0.1098	2.1708	0.2086
0.8280	2.0700	-0.3181	1.8234	-0.1340	2.1658	-0.0368
0.8690	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
0.9100	2.0700	-0.3181	1.8184	-0.3777	2.1708	0.2086
0.9510	2.0850	0.4159	1.8334	0.3535	2.1608	-0.2821
0.9930	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
1.0390	2.0750	-0.0734	1.8284	0.1098	2.1708	0.2086
1.0860	2.0750	-0.0734	1.8284	0.1098	2.1658	-0.0368
1.1270	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
1.1680	2.0800	0.1713	1.8284	0.1098	2.1608	-0.2821
1.2100	2.0700	-0.3181	1.8234	-0.1340	2.1608	-0.2821
1.2510	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
1.2930	2.0750	-0.0734	1.8184	-0.3777	2.1608	-0.2821
1.3340	2.0800	0.1713	1.8234	-0.1340	2.1658	-0.0368
1.3760	2.0700	-0.3181	1.8234	-0.1340	2.1658	-0.0368
1.4170	2.0800	0.1713	1.8284	0.1098	2.1708	0.2086
1.4590	2.0800	0.1713	1.8284	0.1098	2.1658	-0.0368
1.5000	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
1.5410	2.0800	0.1713	1.8284	0.1098	2.1658	-0.0368
1.5830	2.0750	-0.0734	1.8284	0.1098	2.1708	0.2086
1.6240	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
1.6660	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
1.7070	2.0750	-0.0734	1.8284	0.1098	2.1658	-0.0368
1.7480	2.0800	0.1713	1.8234	-0.1340	2.1608	-0.2821
1.7900	2.0750	-0.0734	1.8234	-0.1340	2.1608	-0.2821
1.8360	2.0750	-0.0734	1.8184	-0.3777	2.1658	-0.0368
1.8770	2.0800	0.1713	1.8184	-0.3777	2.1658	-0.0368
1.9190	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
1.9600	2.0700	-0.3181	1.8234	-0.1340	2.1658	-0.0368
2.0010	2.0700	-0.3181	1.8184	-0.3777	2.1658	-0.0368
2.0430	2.0850	0.4159	1.8284	0.1098	2.1708	0.2086
2.0840	2.0800	0.1713	1.8284	0.1098	2.1658	-0.0368
2.1260	2.0750	-0.0734	1.8284	0.1098	2.1658	-0.0368
2.1670	2.0750	-0.0734	1.8184	-0.3777	2.1708	0.2086
2.2080	2.0850	0.4159	1.8334	0.3535	2.1658	-0.0368
2.2500	2.0750	-0.0734	1.8284	0.1098	2.1658	-0.0368
2.2910	2.0700	-0.3181	1.8284	0.1098	2.1658	-0.0368
2.3320	2.0750	-0.0734	1.8284	0.1098	2.1658	-0.0368
2.3740	2.0750	-0.0734	1.8234	-0.1340	2.1708	0.2086
2.4160	2.0750	-0.0734	1.8284	0.1098	2.1608	-0.2821
2.4580	2.0750	-0.0734	1.8284	0.1098	2.1658	-0.0368
2.4990	2.0750	-0.0734	1.8284	0.1098	2.1708	0.2086
2.5410	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
2.5820	2.0750	-0.0734	1.8284	0.1098	2.1708	0.2086
2.6230	2.0700	-0.3181	1.8284	0.1098	2.1658	-0.0368
2.6650	2.0750	-0.0734	1.8284	0.1098	2.1658	-0.0368
2.7110	2.0800	0.1713	1.8284	0.1098	2.1708	0.2086
2.7530	2.0750	-0.0734	1.8284	0.1098	2.1608	-0.2821
2.7940	2.0750	-0.0734	1.8284	0.1098	2.1708	0.2086
2.8360	2.0800	0.1713	1.8234	-0.1340	2.1658	-0.0368
2.8770	2.0800	0.1713	1.8234	-0.1340	2.1658	-0.0368
2.9180	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
2.9600	2.0750	-0.0734	1.8334	0.3535	2.1708	0.2086
3.0010	2.0800	0.1713	1.8234	-0.1340	2.1658	-0.0368

x(3)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
3.0440	2.0700	-0.3181	1.8234	-0.1340	2.1658	-0.0368
3.0860	2.0750	-0.0734	1.8284	0.1098	2.1708	0.2086
3.1300	2.0800	0.1713	1.8284	0.1098	2.1758	0.4539
3.1720	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
3.2140	2.0800	0.1713	1.8234	-0.1340	2.1658	-0.0368
3.2550	2.0700	-0.3181	1.8284	0.1098	2.1708	0.2086
3.2970	2.0750	-0.0734	1.8234	-0.1340	2.1708	0.2086
3.3380	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
3.3840	2.0750	-0.0734	1.8284	0.1098	2.1658	-0.0368
3.4260	2.0750	-0.0734	1.8234	-0.1340	2.1708	0.2086
3.4670	2.0550	-1.0521	1.8184	-0.3777	2.1658	-0.0368
3.5090	2.0500	-1.2968	1.8284	0.1098	2.1658	-0.0368
3.5560	2.0151	-3.0095	1.8234	-0.1340	2.1608	-0.2821
3.6010	2.0350	-2.0308	1.8334	0.3535	2.1658	-0.0368
3.6420	2.0450	-1.5414	1.8334	0.3535	2.1608	-0.2821
3.6830	2.0500	-1.2968	1.8234	-0.1340	2.1758	0.4539
3.7250	2.0600	-0.8074	1.8184	-0.3777	2.1608	-0.2821
3.7660	2.0450	-1.5414	1.8184	-0.3777	2.1658	-0.0368
3.8070	2.0600	-0.8074	1.8334	0.3535	2.1658	-0.0368
3.8480	2.0800	0.1713	1.8184	-0.3777	2.1858	0.9446
3.8900	2.0750	-0.0734	1.8234	-0.1340	2.1758	0.4539
3.9310	2.0850	0.4159	1.8184	-0.3777	2.1708	0.2086
3.9730	2.0950	0.9053	1.8184	-0.3777	2.1758	0.4539
4.0140	2.1099	1.6393	1.8234	-0.1340	2.1708	0.2086
4.0550	2.1049	1.3946	1.8334	0.3535	2.1658	-0.0368
4.0960	2.1099	1.6393	1.8184	-0.3777	2.1658	-0.0368
4.1370	2.1149	1.8840	1.8234	-0.1340	2.1608	-0.2821
4.1780	2.1199	2.1286	1.8284	0.1098	2.1708	0.2086
4.2190	2.1099	1.6393	1.8234	-0.1340	2.1658	-0.0368
4.2590	2.1049	1.3946	1.8184	-0.3777	2.1708	0.2086
4.3070	2.1000	1.1500	1.8284	0.1098	2.1658	-0.0368
4.3530	2.0950	0.9053	1.8234	-0.1340	2.1658	-0.0368
4.3940	2.0850	0.4159	1.8234	-0.1340	2.1708	0.2086
4.4350	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
4.4770	2.0800	0.1713	1.8234	-0.1340	2.1708	0.2086
4.5180	2.0700	-0.3181	1.8184	-0.3777	2.1658	-0.0368
4.5600	2.0700	-0.3181	1.8184	-0.3777	2.1658	-0.0368
4.6010	2.0750	-0.0734	1.8284	0.1098	2.1658	-0.0368
4.6420	2.0850	0.4159	1.8234	-0.1340	2.1708	0.2086
4.6840	2.0800	0.1713	1.8284	0.1098	2.1658	-0.0368
4.7250	2.0850	0.4159	1.8284	0.1098	2.1658	-0.0368
4.7660	2.0750	-0.0734	1.8284	0.1098	2.1658	-0.0368
4.8070	2.0800	0.1713	1.8284	0.1098	2.1608	-0.2821
4.8490	2.0800	0.1713	1.8334	0.3535	2.1708	0.2086
4.8900	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
4.9310	2.0800	0.1713	1.8234	-0.1340	2.1658	-0.0368
4.9770	2.0800	0.1713	1.8284	0.1098	2.1658	-0.0368
5.0210	2.0750	-0.0734	1.8284	0.1098	2.1608	-0.2821
5.0630	2.0800	0.1713	1.8284	0.1098	2.1658	-0.0368
5.1040	2.0800	0.1713	1.8234	-0.1340	2.1658	-0.0368
5.1450	2.0750	-0.0734	1.8284	0.1098	2.1708	0.2086
5.1860	2.0750	-0.0734	1.8284	0.1098	2.1608	-0.2821
5.2280	2.0750	-0.0734	1.8234	-0.1340	2.1658	-0.0368
5.2690	2.0750	-0.0734	1.8234	-0.1340	2.1708	0.2086

X(4)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0800	0.1395	1.8234	-0.1340	2.1658	-0.0957
0.1290	2.0800	0.1395	1.8284	0.1098	2.1658	-0.0957
0.2610	2.0750	-0.1051	1.8234	-0.1340	2.1708	0.1497
0.3930	2.0750	-0.1051	1.8284	0.1098	2.1658	-0.0957
0.4920	2.0750	-0.1051	1.8234	-0.1340	2.1658	-0.0957
0.5430	2.0750	-0.1051	1.8284	0.1098	2.1658	-0.0957
0.5910	2.0750	-0.1051	1.8234	-0.1340	2.1708	0.1497
0.6410	2.0750	-0.1051	1.8284	0.1098	2.1708	0.1497
0.6900	2.0700	-0.3498	1.8284	0.1098	2.1708	0.1497
0.7410	2.0800	0.1395	1.8234	-0.1340	2.1658	-0.0957
0.7940	2.0750	-0.1051	1.8184	-0.3777	2.1708	0.1497
0.8440	2.0750	-0.1051	1.8334	0.3535	2.1708	0.1497
0.8930	2.0550	-1.0838	1.8234	-0.1340	2.1708	0.1497
0.9440	2.0151	-3.0412	1.8284	0.1098	2.1608	-0.3410
0.9970	1.9951	-4.0199	1.8284	0.1098	2.1608	-0.3410
1.0460	2.0300	-2.3072	1.8184	-0.3777	2.1708	0.1497
1.0930	2.0550	-1.0838	1.8284	0.1098	2.1708	0.1497
1.1410	2.0900	0.6289	1.8284	0.1098	2.1658	-0.0957
1.1890	2.0900	0.6289	1.8284	0.1098	2.1608	-0.3410
1.2390	2.0850	0.3842	1.8284	0.1098	2.1557	-0.5864
1.2930	2.0950	0.8735	1.8334	0.3535	2.1658	-0.0957
1.3420	2.0950	0.8735	1.8334	0.3535	2.1608	-0.3410
1.3910	2.0900	0.6289	1.8234	-0.1340	2.1708	0.1497
1.4400	2.0900	0.6289	1.8184	-0.3777	2.1658	-0.0957
1.4910	2.0800	0.1395	1.8234	-0.1340	2.1708	0.1497
1.5450	2.1000	1.1182	1.8284	0.1098	2.1708	0.1497
1.5950	2.0900	0.6289	1.8135	-0.6214	2.1758	0.3950
1.6440	2.1000	1.1182	1.8334	0.3535	2.1658	-0.0957
1.6960	2.1000	1.1182	1.8234	-0.1340	2.1708	0.1497
1.7490	2.0950	0.8735	1.8234	-0.1340	2.1608	-0.3410
1.7980	2.0850	0.3842	1.8234	-0.1340	2.1708	0.1497
1.8500	2.0850	0.3842	1.8234	-0.1340	2.1608	-0.3410
1.9040	2.0800	0.1395	1.8184	-0.3777	2.1658	-0.0957
1.9530	2.0750	-0.1051	1.8234	-0.1340	2.1658	-0.0957
2.0030	2.0800	0.1395	1.8234	-0.1340	2.1658	-0.0957
2.0560	2.0700	-0.3498	1.8234	-0.1340	2.1658	-0.0957
2.1060	2.0850	0.3842	1.8234	-0.1340	2.1608	-0.3410
2.1560	2.0750	-0.1051	1.8184	-0.3777	2.1658	-0.0957
2.2040	2.0750	-0.1051	1.8284	0.1098	2.1658	-0.0957
2.2560	2.0800	0.1395	1.8284	0.1098	2.1708	0.1497
2.3110	2.0750	-0.1051	1.8284	0.1098	2.1708	0.1497
2.3600	2.0750	-0.1051	1.8284	0.1098	2.1658	-0.0957
2.4090	2.0750	-0.1051	1.8234	-0.1340	2.1708	0.1497
2.4620	2.0750	-0.1051	1.8184	-0.3777	2.1658	-0.0957
2.5110	2.0800	0.1395	1.8234	-0.1340	2.1608	-0.3410

x(5)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0750	-0.0661	1.8383	0.5875	2.1658	-0.0442
0.0440	2.0750	-0.0661	1.8334	0.3437	2.1608	-0.2895
0.0910	2.0750	-0.0661	1.8284	0.1000	2.1708	0.2012
0.1410	2.0750	-0.0661	1.8234	-0.1437	2.1658	-0.0442
0.1880	2.0750	-0.0661	1.8334	0.3437	2.1658	-0.0442
0.2340	2.0750	-0.0661	1.8234	-0.1437	2.1708	0.2012
0.2810	2.0800	0.1786	1.8284	0.1000	2.1658	-0.0442
0.3280	2.0800	0.1786	1.8284	0.1000	2.1708	0.2012
0.3810	2.0800	0.1786	1.8284	0.1000	2.1708	0.2012
0.4310	2.0700	-0.3108	1.8234	-0.1437	2.1658	-0.0442
0.4830	2.0750	-0.0661	1.8284	0.1000	2.1708	0.2012
0.5380	2.0700	-0.3108	1.8234	-0.1437	2.1658	-0.0442
0.5870	2.0800	0.1786	1.8284	0.1000	2.1608	-0.2895
0.6400	2.0750	-0.0661	1.8334	0.3437	2.1658	-0.0442
0.6940	2.0800	0.1786	1.8234	-0.1437	2.1658	-0.0442
0.7430	2.0800	0.1786	1.8234	-0.1437	2.1708	0.2012
0.7960	2.0800	0.1786	1.8234	-0.1437	2.1658	-0.0442
0.8500	2.0750	-0.0661	1.8234	-0.1437	2.1708	0.2012
0.8990	2.0750	-0.0661	1.8284	0.1000	2.1658	-0.0442
0.9510	2.0750	-0.0661	1.8284	0.1000	2.1608	-0.2895
1.0060	2.0500	-1.2894	1.8234	-0.1437	2.1658	-0.0442
1.0550	2.0300	-2.2681	1.8284	0.1000	2.1608	-0.2895
1.1050	2.0300	-2.2681	1.8135	-0.6312	2.1507	-0.7802
1.1580	2.0450	-1.5341	1.8284	0.1000	2.1658	-0.0442
1.2070	2.0450	-1.5341	1.8334	0.3437	2.1608	-0.2895
1.2560	2.0400	-1.7788	1.8184	-0.3875	2.1758	0.4466
1.3060	2.0500	-1.2894	1.8184	-0.3875	2.1557	-0.5348
1.3550	2.0700	-0.3108	1.8284	0.1000	2.1658	-0.0442
1.4100	2.0700	-0.3108	1.8284	0.1000	2.1557	-0.5348
1.4590	2.0950	0.9126	1.8284	0.1000	2.1557	-0.5348
1.5070	2.0950	0.9126	1.8334	0.3437	2.1658	-0.0442
1.5570	2.1000	1.1573	1.8234	-0.1437	2.1708	0.2012
1.6110	2.1049	1.4019	1.8334	0.3437	2.1608	-0.2895
1.6600	2.1049	1.4019	1.8135	-0.6312	2.1708	0.2012
1.7080	2.1049	1.4019	1.8234	-0.1437	2.1557	-0.5348
1.7570	2.1099	1.6466	1.8234	-0.1437	2.1608	-0.2895
1.8060	2.1049	1.4019	1.8284	0.1000	2.1708	0.2012
1.8560	2.0950	0.9126	1.8184	-0.3875	2.1708	0.2012
1.9100	2.0800	0.1786	1.8234	-0.1437	2.1658	-0.0442
1.9600	2.0750	-0.0661	1.8234	-0.1437	2.1658	-0.0442
2.0090	2.0750	-0.0661	1.8284	0.1000	2.1658	-0.0442
2.0610	2.0750	-0.0661	1.8284	0.1000	2.1658	-0.0442
2.1150	2.0700	-0.3108	1.8234	-0.1437	2.1658	-0.0442
2.1650	2.0750	-0.0661	1.8184	-0.3875	2.1608	-0.2895
2.2170	2.0750	-0.0661	1.8234	-0.1437	2.1557	-0.5348
2.2700	2.0750	-0.0661	1.8234	-0.1437	2.1658	-0.0442
2.3190	2.0800	0.1786	1.8234	-0.1437	2.1658	-0.0442
2.3690	2.0800	0.1786	1.8334	0.3437	2.1708	0.2012
2.4220	2.0750	-0.0661	1.8234	-0.1437	2.1608	-0.2895
2.4720	2.0750	-0.0661	1.8234	-0.1437	2.1658	-0.0442
2.5200	2.0750	-0.0661	1.8234	-0.1437	2.1658	-0.0442
2.5690	2.0750	-0.0661	1.8284	0.1000	2.1658	-0.0442
2.6170	2.0800	0.1786	1.8284	0.1000	2.1658	-0.0442
2.6680	2.0800	0.1786	1.8234	-0.1437	2.1708	0.2012

| | Negative X(1) | | | | | | | | Negative X(1) continued | | | | | |
| Time | X-axis | | Y-axis | | Z-axis | | | Time | X-axis | | Y-axis | | Z-axis | |
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2		Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0650	-0.4698	1.8184	-0.2510	2.1608	-0.1276		2.4730	2.0700	-0.2252	1.8234	-0.0072	2.1658	0.1177
0.0470	2.0750	0.0195	1.8234	-0.0072	2.1608	-0.1276		2.5250	2.0650	-0.4698	1.8284	0.2365	2.1608	-0.1276
0.0940	2.0800	0.2642	1.8234	-0.0072	2.1608	-0.1276		2.5790	2.0700	-0.2252	1.8234	-0.0072	2.1608	-0.1276
0.1410	2.0750	0.0195	1.8184	-0.2510	2.1658	0.1177		2.6410	2.0750	0.0195	1.8184	-0.2510	2.1608	-0.1276
0.1880	2.0800	0.2642	1.8284	0.2365	2.1658	0.1177		2.6910	2.0750	0.0195	1.8284	0.2365	2.1608	-0.1276
0.2350	2.0750	0.0195	1.8184	-0.2510	2.1658	0.1177		2.7410	2.0750	0.0195	1.8334	0.4802	2.1658	0.1177
0.2820	2.0700	-0.2252	1.8234	-0.0072	2.1608	-0.1276		2.7940	2.0700	-0.2252	1.8284	0.2365	2.1658	0.1177
0.3290	2.0750	0.0195	1.8234	-0.0072	2.1658	0.1177		2.8480	2.0750	0.0195	1.8234	-0.0072	2.1608	-0.1276
0.3790	2.0800	0.2642	1.8284	0.2365	2.1608	-0.1276		2.8990	2.0800	0.2642	1.8284	0.2365	2.1658	0.1177
0.4280	2.0750	0.0195	1.8234	-0.0072	2.1658	0.1177		2.9530	2.0800	0.2642	1.8234	-0.0072	2.1708	0.3631
0.4820	2.0750	0.0195	1.8184	-0.2510	2.1658	0.1177		3.0070	2.0750	0.0195	1.8284	0.2365	2.1658	0.1177
0.5360	2.0700	-0.2252	1.8184	-0.2510	2.1608	-0.1276		3.0590	2.0700	-0.2252	1.8234	-0.0072	2.1708	0.3631
0.5850	2.0750	0.0195	1.8184	-0.2510	2.1708	0.3631		3.1130	2.0750	0.0195	1.8284	0.2365	2.1608	-0.1276
0.6380	2.0800	0.2642	1.8234	-0.0072	2.1608	-0.1276		3.1630	2.0800	0.2642	1.8234	-0.0072	2.1608	-0.1276
0.6880	2.0700	-0.2252	1.8184	-0.2510	2.1708	0.3631		3.2150	2.0700	-0.2252	1.8234	-0.0072	2.1608	-0.1276
0.7380	2.0800	0.2642	1.8234	-0.0072	2.1658	0.1177		3.2690	2.0700	-0.2252	1.8234	-0.0072	2.1658	0.1177
0.7870	2.0800	0.2642	1.8184	-0.2510	2.1708	0.3631		3.3180	2.0750	0.0195	1.8234	-0.0072	2.1708	0.3631
0.8390	2.0750	0.0195	1.8085	-0.7384	2.1608	-0.1276		3.3690	2.0800	0.2642	1.8184	-0.2510	2.1658	0.1177
0.8920	2.0750	0.0195	1.8135	-0.4947	2.1658	0.1177		3.4230	2.0800	0.2642	1.8234	-0.0072	2.1557	-0.3730
0.9420	2.0800	0.2642	1.8284	0.2365	2.1658	0.1177		3.4720	2.0750	0.0195	1.8234	-0.0072	2.1658	0.1177
0.9910	2.0750	0.0195	1.8234	-0.0072	2.1658	0.1177		3.5220	2.0750	0.0195	1.8184	-0.2510	2.1658	0.1177
1.0450	2.0750	0.0195	1.8234	-0.0072	2.1608	-0.1276		3.5730	2.0800	0.2642	1.8234	-0.0072	2.1658	0.1177
1.0940	2.0800	0.2642	1.8184	-0.2510	2.1658	0.1177		3.6210	2.0750	0.0195	1.8284	0.2365	2.1658	0.1177
1.1440	2.0750	0.0195	1.8234	-0.0072	2.1608	-0.1276		3.6740	2.0750	0.0195	1.8234	-0.0072	2.1608	-0.1276
1.1940	2.0750	0.0195	1.8184	-0.2510	2.1658	0.1177		3.7290	2.0650	-0.4698	1.8184	-0.2510	2.1608	-0.1276
1.2470	2.0700	-0.2252	1.8234	-0.0072	2.1658	0.1177		3.7850	2.0750	0.0195	1.8234	-0.0072	2.1708	0.3631
1.3010	2.0750	0.0195	1.8234	-0.0072	2.1658	0.1177		3.8380	2.0700	-0.2252	1.8284	0.2365	2.1658	0.1177
1.3530	2.0750	0.0195	1.8184	-0.2510	2.1658	0.1177		3.8940	2.0750	0.0195	1.8234	-0.0072	2.1608	-0.1276
1.4080	2.0900	0.7535	1.8284	0.2365	2.1608	-0.1276		3.9480	2.0800	0.2642	1.8184	-0.2510	2.1658	0.1177
1.4570	2.0900	0.7535	1.8234	-0.0072	2.1608	-0.1276		4.0040	2.0800	0.2642	1.8184	-0.2510	2.1658	0.1177
1.5060	2.1000	1.2429	1.8284	0.2365	2.1658	0.1177		4.0540	2.0750	0.0195	1.8234	-0.0072	2.1608	-0.1276
1.5560	2.1049	1.4875	1.8284	0.2365	2.1608	-0.1276		4.1110	2.0800	0.2642	1.8284	0.2365	2.1658	0.1177
1.6130	2.0900	0.7535	1.8184	-0.2510	2.1708	0.3631		4.1620	2.0750	0.0195	1.8234	-0.0072	2.1557	-0.3730
1.6620	2.0950	0.9982	1.8184	-0.2510	2.1708	0.3631		4.2170	2.0800	0.2642	1.8234	-0.0072	2.1658	0.1177
1.7130	2.0900	0.7535	1.8184	-0.2510	2.1658	0.1177		4.2740	2.0750	0.0195	1.8284	0.2365	2.1708	0.3631
1.7660	2.0850	0.5088	1.8184	-0.2510	2.1708	0.3631		4.3310	2.0800	0.2642	1.8284	0.2365	2.1658	0.1177
1.8150	2.0800	0.2642	1.8284	0.2365	2.1557	-0.3730		4.3820	2.0800	0.2642	1.8234	-0.0072	2.1658	0.1177
1.8650	2.0900	0.7535	1.8184	-0.2510	2.1708	0.3631		4.4350	2.0750	0.0195	1.8234	-0.0072	2.1658	0.1177
1.9150	2.1049	1.4875	1.8533	1.4551	2.1858	1.0991		4.4870	2.0750	0.0195	1.8234	-0.0072	2.1608	-0.1276
1.9640	2.0800	0.2642	1.8184	-0.2510	2.1708	0.3631		4.5380	2.0850	0.5088	1.8234	-0.0072	2.1658	0.1177
2.0180	2.0550	-0.9592	1.8334	0.4802	2.1507	-0.6183		4.5920	2.0700	-0.2252	1.8234	-0.0072	2.1608	-0.1276
2.0670	2.0550	-0.9592	1.8184	-0.2510	2.1758	0.6084		4.6600	2.0750	0.0195	1.8234	-0.0072	2.1608	-0.1276
2.1150	2.0450	-1.4485	1.8184	-0.2510	2.1708	0.3631		4.7140	2.0800	0.2642	1.8234	-0.0072	2.1658	0.1177
2.1660	2.0450	-1.4485	1.8234	-0.0072	2.1557	-0.3730		4.7690	2.0800	0.2642	1.8234	-0.0072	2.1658	0.1177
2.2200	2.0500	-1.2039	1.8234	-0.0072	2.1658	0.1177								
2.2690	2.0650	-0.4698	1.8184	-0.2510	2.1858	1.0991								
2.3190	2.0600	-0.7145	1.8234	-0.0072	2.1608	-0.1276								
2.3700	2.0700	-0.2252	1.8234	-0.0072	2.1658	0.1177								
2.4250	2.0750	0.0195	1.8184	-0.2510	2.1658	0.1177								

Negative X(2)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0800	0.2373	1.8234	0.0050	2.1658	0.1030
0.0440	2.0750	-0.0073	1.8234	0.0050	2.1708	0.3483
0.0910	2.0750	-0.0073	1.8334	0.4924	2.1658	0.1030
0.1380	2.0700	-0.2520	1.8184	-0.2388	2.1658	0.1030
0.1850	2.0750	-0.0073	1.8234	0.0050	2.1658	0.1030
0.2320	2.0800	0.2373	1.8234	0.0050	2.1658	0.1030
0.2780	2.0800	0.2373	1.8234	0.0050	2.1708	0.3483
0.3250	2.0750	-0.0073	1.8284	0.2487	2.1658	0.1030
0.3740	2.0750	-0.0073	1.8184	-0.2388	2.1658	0.1030
0.4240	2.0750	-0.0073	1.8234	0.0050	2.1608	-0.1423
0.4770	2.0750	-0.0073	1.8184	-0.2388	2.1658	0.1030
0.5330	2.0700	-0.2520	1.8234	0.0050	2.1608	-0.1423
0.5810	2.0850	0.4820	1.8234	0.0050	2.1658	0.1030
0.6340	2.0750	-0.0073	1.8234	0.0050	2.1658	0.1030
0.6890	2.0800	0.2373	1.8234	0.0050	2.1658	0.1030
0.7390	2.0700	-0.2520	1.8184	-0.2388	2.1658	0.1030
0.7900	2.0800	0.2373	1.8284	0.2487	2.1658	0.1030
0.8450	2.0800	0.2373	1.8234	0.0050	2.1708	0.3483
0.8950	2.0800	0.2373	1.8284	0.2487	2.1658	0.1030
0.9490	2.0800	0.2373	1.8184	-0.2388	2.1608	-0.1423
1.0020	2.0900	0.7267	1.8284	0.2487	2.1658	0.1030
1.0510	2.0900	0.7267	1.8184	-0.2388	2.1608	-0.1423
1.1030	2.0950	0.9714	1.8184	-0.2388	2.1608	-0.1423
1.1570	2.0950	0.9714	1.8234	0.0050	2.1608	-0.1423
1.2050	2.1000	1.2160	1.8234	0.0050	2.1557	-0.3877
1.2550	2.0950	0.9714	1.8334	0.4924	2.1608	-0.1423
1.3080	2.0900	0.7267	1.8234	0.0050	2.1658	0.1030
1.3620	2.0850	0.4820	1.8184	-0.2388	2.1708	0.3483
1.4120	2.0850	0.4820	1.8284	0.2487	2.1608	-0.1423
1.4640	2.0750	-0.0073	1.8284	0.2487	2.1658	0.1030
1.5170	2.0800	0.2373	1.8334	0.4924	2.1658	0.1030
1.5660	2.0700	-0.2520	1.8184	-0.2388	2.1658	0.1030
1.6180	2.0700	-0.2520	1.8184	-0.2388	2.1758	0.5937
1.6710	2.0600	-0.7413	1.8284	0.2487	2.1658	0.1030
1.7200	2.0600	-0.7413	1.8334	0.4924	2.1608	-0.1423
1.7690	2.0500	-1.2307	1.8284	0.2487	2.1658	0.1030
1.8180	2.0550	-0.9860	1.8234	0.0050	2.1608	-0.1423
1.8710	2.0650	-0.4967	1.8234	0.0050	2.1608	-0.1423
1.9200	2.0550	-0.9860	1.8184	-0.2388	2.1758	0.5937
1.9690	2.0600	-0.7413	1.8135	-0.4825	2.1608	-0.1423
2.0180	2.0650	-0.4967	1.8234	0.0050	2.1658	0.1030
2.0680	2.0750	-0.0073	1.8234	0.0050	2.1658	0.1030
2.1230	2.0700	-0.2520	1.8184	-0.2388	2.1658	0.1030
2.1750	2.0750	-0.0073	1.8184	-0.2388	2.1658	0.1030
2.2260	2.0750	-0.0073	1.8234	0.0050	2.1658	0.1030
2.2820	2.0750	-0.0073	1.8234	0.0050	2.1658	0.1030
2.3310	2.0750	-0.0073	1.8284	0.2487	2.1658	0.1030
2.3840	2.0800	0.2373	1.8284	0.2487	2.1658	0.1030
2.4390	2.0800	0.2373	1.8284	0.2487	2.1608	-0.1423
2.4890	2.0750	-0.0073	1.8234	0.0050	2.1708	0.3483
2.5400	2.0550	-0.9860	1.8284	0.2487	2.1658	0.1030
2.5950	2.0750	-0.0073	1.8085	-0.7262	2.1708	0.3483
2.6440	2.0800	0.2373	1.8234	0.0050	2.1658	0.1030
2.6950	2.0800	0.2373	1.8234	0.0050	2.1708	0.3483
2.7490	2.0650	-0.4967	1.8234	0.0050	2.1658	0.1030
2.7980	2.0850	0.4820	1.8234	0.0050	2.1608	-0.1423

Negative X(3)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0800	0.2178	1.8234	-0.0511	2.1658	0.0343
0.0420	2.0750	-0.0269	1.8234	-0.0511	2.1658	0.0343
0.0890	2.0800	0.2178	1.8284	0.1926	2.1658	0.0343
0.1350	2.0800	0.2178	1.8234	-0.0511	2.1658	0.0343
0.1820	2.0800	0.2178	1.8184	-0.2948	2.1658	0.0343
0.2290	2.0750	-0.0269	1.8284	0.1926	2.1658	0.0343
0.2760	2.0850	0.4624	1.8284	0.1926	2.1658	0.0343
0.3230	2.0700	-0.2716	1.8184	-0.2948	2.1708	0.2797
0.3690	2.0750	-0.0269	1.8234	-0.0511	2.1658	0.0343
0.4180	2.0750	-0.0269	1.8284	0.1926	2.1658	0.0343
0.4680	2.0800	0.2178	1.8234	-0.0511	2.1608	-0.2110
0.5210	2.0750	-0.0269	1.8284	0.1926	2.1608	-0.2110
0.5760	2.0750	-0.0269	1.8284	0.1926	2.1708	0.2797
0.6270	2.0650	-0.5163	1.8234	-0.0511	2.1658	0.0343
0.6790	2.0750	-0.0269	1.8234	-0.0511	2.1658	0.0343
0.7280	2.0750	-0.0269	1.8234	-0.0511	2.1658	0.0343
0.7780	2.0800	0.2178	1.8234	-0.0511	2.1708	0.2797
0.8280	2.0750	-0.0269	1.8234	-0.0511	2.1658	0.0343
0.8790	2.0750	-0.0269	1.8234	-0.0511	2.1658	0.0343
0.9340	2.0700	-0.2716	1.8234	-0.0511	2.1658	0.0343
0.9830	2.0750	-0.0269	1.8284	0.1926	2.1608	-0.2110
1.0370	2.0800	0.2178	1.8284	0.1926	2.1658	0.0343
1.0900	2.0700	-0.2716	1.8284	0.1926	2.1708	0.2797
1.1400	2.0800	0.2178	1.8234	-0.0511	2.1658	0.0343
1.1930	2.0800	0.2178	1.8234	-0.0511	2.1658	0.0343
1.2470	2.0800	0.2178	1.8234	-0.0511	2.1658	0.0343
1.2960	2.0850	0.4624	1.8234	-0.0511	2.1658	0.0343
1.3470	2.0700	-0.2716	1.8184	-0.2948	2.1658	0.0343
1.4010	2.0800	0.2178	1.8284	0.1926	2.1658	0.0343
1.4510	2.0800	0.2178	1.8184	-0.2948	2.1658	0.0343
1.5000	2.0850	0.4624	1.8234	-0.0511	2.1608	-0.2110
1.5460	2.0950	0.9518	1.8284	0.1926	2.1658	0.0343
1.5940	2.1049	1.4411	1.8284	0.1926	2.1658	0.0343
1.6420	2.1049	1.4411	1.8284	0.1926	2.1708	0.2797
1.6950	2.1000	1.1965	1.8184	-0.2948	2.1708	0.2797
1.7470	2.0900	0.7071	1.8184	-0.2948	2.1608	-0.2110
1.7960	2.0900	0.7071	1.8234	-0.0511	2.1608	-0.2110
1.8470	2.0900	0.7071	1.8234	-0.0511	2.1658	0.0343
1.9010	2.0800	0.2178	1.8234	-0.0511	2.1507	-0.7017
1.9500	2.0800	0.2178	1.8284	0.1926	2.1658	0.0343
2.0000	2.0700	-0.2716	1.8234	-0.0511	2.1608	-0.2110
2.0510	2.0600	-0.7609	1.8234	-0.0511	2.1658	0.0343
2.1050	2.0550	-1.0056	1.8184	-0.2948	2.1608	-0.2110
2.1540	2.0600	-0.7609	1.8433	0.9238	2.1658	0.0343
2.2020	2.0600	-0.7609	1.8284	0.1926	2.1708	0.2797
2.2520	2.0550	-1.0056	1.8383	0.6801	2.1507	-0.7017
2.3050	2.0550	-1.0056	1.8234	-0.0511	2.1708	0.2797
2.3530	2.0400	-1.7396	1.8284	0.1926	2.1608	-0.2110
2.4030	2.0600	-0.7609	1.8184	-0.2948	2.1658	0.0343
2.4520	2.0650	-0.5163	1.8234	-0.0511	2.1608	-0.2110
2.5020	2.0650	-0.5163	1.8284	0.1926	2.1708	0.2797
2.5560	2.0750	-0.0269	1.8284	0.1926	2.1658	0.0343
2.6200	2.0750	-0.0269	1.8234	-0.0511	2.1608	-0.2110
2.6690	2.0800	0.2178	1.8234	-0.0511	2.1658	0.0343
2.7190	2.0800	0.2178	1.8234	-0.0511	2.1658	0.0343
2.7710	2.0700	-0.2716	1.8284	0.1926	2.1708	0.2797
2.8260	2.0700	-0.2716	1.8234	-0.0511	2.1608	-0.2110
2.8750	2.0750	-0.0269	1.8284	0.1926	2.1658	0.0343
2.9280	2.0750	-0.0269	1.8234	-0.0511	2.1658	0.0343
2.9820	2.0850	0.4624	1.8284	0.1926	2.1658	0.0343
3.0310	2.0900	0.7071	1.8334	0.4364	2.1658	0.0343
3.0830	2.0850	0.4624	1.8284	0.1926	2.1708	0.2797
3.1360	2.0450	-1.4949	1.8483	1.1675	2.1608	-0.2110
3.1840	2.0251	-2.4736	1.8383	0.6801	2.1858	1.0157
3.2320	2.0750	-0.0269	1.8184	-0.2948	2.1658	0.0343
3.2820	2.0850	0.4624	1.8234	-0.0511	2.1608	-0.2110
3.3340	2.0750	-0.0269	1.8234	-0.0511	2.1658	0.0343
3.3880	2.0800	0.2178	1.8284	0.1926	2.1658	0.0343
3.4370	2.0750	-0.0269	1.8334	0.4364	2.1658	0.0343
3.4900	2.0750	-0.0269	1.8184	-0.2948	2.1658	0.0343
3.5440	2.0800	0.2178	1.8284	0.1926	2.1608	-0.2110
3.5930	2.0700	-0.2716	1.8284	0.1926	2.1608	-0.2110
3.6440	2.0750	-0.0269	1.8234	-0.0511	2.1658	0.0343
3.7030	2.0850	0.4624	1.8184	-0.2948	2.1658	0.0343
3.7560	2.0800	0.2178	1.8234	-0.0511	2.1658	0.0343
3.8120	2.0750	-0.0269	1.8234	-0.0511	2.1658	0.0343

	Negative X(4)								Negative X(5)					
Time	X-axis		Y-axis		Z-axis			Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2		Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0800	0.1297	1.8234	-0.0828	2.1658	-0.0294		0.0000	2.0750	-0.0221	1.8184	-0.3606	2.1658	-0.0196
0.0430	2.0750	-0.1149	1.8334	0.4047	2.1708	0.2159		0.0440	2.0850	0.4673	1.8334	0.3705	2.1708	0.2257
0.0900	2.0800	0.1297	1.8184	-0.3265	2.1658	-0.0294		0.0900	2.0750	-0.0221	1.8234	-0.1169	2.1708	0.2257
0.1360	2.0750	-0.1149	1.8234	-0.0828	2.1708	0.2159		0.1380	2.0750	-0.0221	1.8234	-0.1169	2.1658	-0.0196
0.1820	2.0800	0.1297	1.8234	-0.0828	2.1658	-0.0294		0.1850	2.0750	-0.0221	1.8334	0.3705	2.1658	-0.0196
0.2290	2.0800	0.1297	1.8184	-0.3265	2.1320	0.2159		0.2320	2.0750	-0.0221	1.8284	0.1268	2.1658	-0.0196
0.2780	2.0800	0.1297	1.8234	-0.0828	2.1608	-0.2748		0.2790	2.0750	-0.0221	1.8334	0.3705	2.1608	-0.2650
0.3250	2.0850	0.3744	1.8234	-0.0828	2.1658	-0.0294		0.3290	2.0750	-0.0221	1.8284	0.1268	2.1658	-0.0196
0.3720	2.0850	0.3744	1.8334	0.4047	2.1708	0.2159		0.3820	2.0750	-0.0221	1.8334	0.3705	2.1658	-0.0196
0.4220	2.0700	-0.3596	1.8184	-0.3265	2.1658	-0.0294		0.4360	2.0750	-0.0221	1.8334	0.3705	2.1608	-0.2650
0.4720	2.0750	-0.1149	1.8234	-0.0828	2.1658	-0.0294		0.4860	2.0750	-0.0221	1.8234	-0.1169	2.1608	-0.2650
0.5230	2.0800	0.1297	1.8234	-0.0828	2.1658	-0.0294		0.5390	2.0800	0.2226	1.8284	0.1268	2.1608	-0.2650
0.5780	2.0800	0.1297	1.8184	-0.3265	2.1608	-0.2748		0.6060	2.0750	-0.0221	1.8284	0.1268	2.1658	-0.0196
0.6270	2.0800	0.1297	1.8234	-0.0828	2.1658	-0.0294		0.6560	2.0750	-0.0221	1.8284	0.1268	2.1658	-0.0196
0.6790	2.0750	-0.1149	1.8284	0.1609	2.1708	0.2159		0.7060	2.0750	-0.0221	1.8234	-0.1169	2.1708	0.2257
0.7320	2.0750	-0.1149	1.8184	-0.3265	2.1658	-0.0294		0.7590	2.0700	-0.2667	1.8284	0.1268	2.1658	-0.0196
0.7820	2.0700	-0.3596	1.8234	-0.0828	2.1658	-0.0294		0.8120	2.0750	-0.0221	1.8334	0.3705	2.1658	-0.0196
0.8310	2.0750	-0.1149	1.8284	0.1609	2.1658	-0.0294		0.8630	2.0800	0.2226	1.8234	-0.1169	2.1608	-0.2650
0.8840	2.0800	0.1297	1.8284	0.1609	2.1708	0.2159		0.9150	2.0750	-0.0221	1.8284	0.1268	2.1658	-0.0196
0.9370	2.0750	-0.1149	1.8284	0.1609	2.1658	-0.0294		0.9700	2.0800	0.2226	1.8234	-0.1169	2.1658	-0.0196
0.9870	2.0750	-0.1149	1.8234	-0.0828	2.1708	0.2159		1.0190	2.0750	-0.0221	1.8284	0.1268	2.1658	-0.0196
1.0390	2.0800	0.1297	1.8284	0.1609	2.1708	0.2159		1.0730	2.0750	-0.0221	1.8284	0.1268	2.1658	-0.0196
1.0930	2.0750	-0.1149	1.8234	-0.0828	2.1658	-0.0294		1.1230	2.0800	0.2226	1.8234	-0.1169	2.1608	-0.2650
1.1420	2.0800	0.1297	1.8234	-0.0828	2.1708	0.2159		1.1720	2.0700	-0.2667	1.8284	0.1268	2.1608	-0.2650
1.1920	2.0800	0.1297	1.8234	-0.0828	2.1608	-0.2748		1.2220	2.0800	0.2226	1.8234	-0.1169	2.1658	-0.0196
1.2460	2.0750	-0.1149	1.8234	-0.0828	2.1658	-0.0294		1.2730	2.0800	0.2226	1.8284	0.1268	2.1608	-0.2650
1.2960	2.0750	-0.1149	1.8234	-0.0828	2.1658	-0.0294		1.3270	2.0850	0.4673	1.8284	0.1268	2.1658	-0.0196
1.3460	2.0750	-0.1149	1.8234	-0.0828	2.1708	0.2159		1.3770	2.0850	0.4673	1.8284	0.1268	2.1608	-0.2650
1.3950	2.0800	0.1297	1.8234	-0.0828	2.1608	-0.2748		1.4270	2.0900	0.7120	1.8234	-0.1169	2.1608	-0.2650
1.4480	2.0800	0.1297	1.8234	-0.0828	2.1608	-0.2748		1.4800	2.1000	1.2013	1.8234	-0.1169	2.1658	-0.0196
1.4970	2.0900	0.6191	1.8284	0.1609	2.1708	0.2159		1.5300	2.1049	1.4460	1.8234	-0.1169	2.1658	-0.0196
1.5460	2.0850	0.3744	1.8234	-0.0828	2.1708	0.2159		1.5790	2.1099	1.6906	1.8334	0.3705	2.1658	-0.0196
1.5950	2.1049	1.3531	1.8135	-0.5702	2.1608	-0.2748		1.6290	2.1099	1.6906	1.8284	0.1268	2.1658	-0.0196
1.6420	2.1099	1.5978	1.8284	0.1609	2.1708	0.2159		1.6810	2.1049	1.4460	1.8135	-0.6044	2.1507	-0.7557
1.6930	2.1149	1.8424	1.8135	-0.5702	2.1708	0.2159		1.7330	2.1199	2.1800	1.8284	0.1268	2.1708	0.2257
1.7460	2.1149	1.8424	1.8135	-0.5702	2.1658	-0.0294		1.7830	2.1049	1.4460	1.8184	-0.3606	2.1557	-0.5103
1.7950	2.1249	2.3318	1.8334	0.4047	2.1658	-0.0294		1.8310	2.1049	1.4460	1.8184	-0.3606	2.1608	-0.2650
1.8440	2.1049	1.3531	1.8284	0.1609	2.1708	0.2159		1.8820	2.0800	0.2226	1.8184	-0.3606	2.1858	0.9618
1.8920	2.1000	1.1084	1.8234	-0.0828	2.1658	-0.0294		1.9360	2.0500	-1.2454	1.8334	0.3705	2.1507	-0.7557
1.9430	2.0800	0.1297	1.8284	0.1609	2.1557	-0.5201		1.9830	2.0201	-2.7134	1.8234	-0.1169	2.1608	-0.2650
1.9960	2.0800	0.1297	1.8334	0.4047	2.1758	0.4613		2.0320	1.9951	-3.9368	1.8085	-0.8481	2.1608	-0.2650
2.0450	2.0550	-1.0936	1.8184	-0.3265	2.1557	-0.5201		2.0810	2.0251	-2.4688	1.8284	0.1268	2.1658	-0.0196
2.0940	2.0500	-1.3383	1.8184	-0.3265	2.1708	0.2159		2.1340	2.0350	-1.9794	1.8234	-0.1169	2.1758	0.4711
2.1410	2.0600	-0.8489	1.8334	0.4047	2.1708	0.2159		2.1870	2.0700	-0.2667	1.8234	-0.1169	2.1608	-0.2650
2.1900	2.0400	-1.8276	1.8234	-0.0828	2.1708	0.2159		2.2360	2.1449	3.4033	1.7985	-1.3356	2.1808	0.7164
2.2420	2.0500	-1.3383	1.8334	0.4047	2.1557	-0.5201		2.2850	2.1099	1.6906	1.8135	-0.6044	2.1708	0.2257
2.2950	2.0450	-1.5830	1.8234	-0.0828	2.1708	0.2159		2.3350	2.0700	-0.2667	1.8334	0.3705	2.1808	0.7164
2.3440	2.0650	-0.6043	1.8284	0.1609	2.1808	0.7066		2.3900	2.0800	0.2226	1.8284	0.1268	2.1708	0.2257
2.3920	2.0650	-0.6043	1.8234	-0.0828	2.1708	0.2159		2.4360	2.0700	-0.2667	1.8234	-0.1169	2.1658	-0.0196
2.4420	2.0650	-0.6043	1.8234	-0.0828	2.1608	-0.2748		2.4840	2.0800	0.2226	1.8284	0.1268	2.1608	-0.2650
2.4950	2.0800	0.1297	1.8284	0.1609	2.1708	0.2159		2.5330	2.0750	-0.0221	1.8234	-0.1169	2.1658	-0.0196
2.5440	2.0600	-0.8489	1.8234	-0.0828	2.1507	-0.7655		2.5850	2.0700	-0.2667	1.8234	-0.1169	2.1658	-0.0196
2.5930	2.0900	0.6191	1.8334	0.4047	2.1708	0.2159		2.6390	2.0800	0.2226	1.8284	0.1268	2.1658	-0.0196
2.6410	1.4758	-29.4755	1.8035	-1.0577	2.1758	0.4613		2.6880	2.0750	-0.0221	1.8234	-0.1169	2.1658	-0.0196
2.6890	1.9402	-6.7211	1.8632	1.8671	2.1708	0.2159		2.7380	2.0650	-0.5114	1.8234	-0.1169	2.1658	-0.0196
2.7370	2.0900	0.6191	1.7836	-2.0326	2.1658	-0.0294		2.7900	2.0800	0.2226	1.8284	0.1268	2.1658	-0.0196
2.7880	2.0700	-0.3596	1.8334	0.4047	2.1658	-0.0294								
2.8430	2.0750	-0.1149	1.8383	0.6484	2.1608	-0.2748								
2.8910	2.0800	0.1297	1.8284	0.1609	2.1658	-0.0294								
2.9400	2.0750	-0.1149	1.8234	-0.0828	2.1708	0.2159								
2.9920	2.0700	-0.3596	1.8234	-0.0828	2.1608	-0.2748								
3.0470	2.0750	-0.1149	1.8184	-0.3265	2.1658	-0.0294								
3.0970	2.0800	0.1297	1.8284	0.1609	2.1708	0.2159								
3.1470	2.0800	0.1297	1.8284	0.1609	2.1708	0.2159								
3.2010	2.0750	-0.1149	1.8234	-0.0828	2.1708	0.2159								
3.2500	2.0750	-0.1149	1.8284	0.1609	2.1658	-0.0294								

Y(1)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0800	0.2446	1.8334	-0.0584	2.1708	0.0197
0.0500	2.0800	0.2446	1.8334	-0.0584	2.1658	-0.2257
0.0990	2.0700	-0.2447	1.8334	-0.0584	2.1708	0.0197
0.1490	2.0750	-0.0000	1.8334	-0.0584	2.1708	0.0197
0.1990	2.0700	-0.2447	1.8383	0.1853	2.1758	0.2650
0.2520	2.0750	-0.0000	1.8334	-0.0584	2.1708	0.0197
0.3030	2.0750	-0.0000	1.8334	-0.0584	2.1758	0.2650
0.3540	2.0750	-0.0000	1.8334	-0.0584	2.1708	0.0197
0.4070	2.0750	-0.0000	1.8334	-0.0584	2.1708	0.0197
0.4580	2.0750	-0.0000	1.8284	-0.3022	2.1708	0.0197
0.5100	2.0750	-0.0000	1.8383	0.1853	2.1808	0.5104
0.5620	2.0700	-0.2447	1.8334	-0.0584	2.1758	0.2650
0.6160	2.0800	0.2446	1.8284	-0.3022	2.1758	0.2650
0.6650	2.0800	0.2446	1.8184	-0.7896	2.1658	-0.2257
0.7140	2.0700	-0.2447	1.8135	-1.0333	2.1708	0.0197
0.7720	2.0800	0.2446	1.7936	-2.0083	2.1808	0.5104
0.8200	2.0750	-0.0000	1.7936	-2.0083	2.1808	0.5104
0.8700	2.0700	-0.2447	1.7836	-2.4957	2.1708	0.0197
0.9210	2.0700	-0.2447	1.8035	-1.5208	2.1557	-0.7164
0.9750	2.0650	-0.4894	1.8085	-1.2771	2.1908	1.0011
1.0240	2.0800	0.2446	1.8184	-0.7896	2.1858	0.7557
1.0710	2.0650	-0.4894	1.8234	-0.5459	2.1708	0.0197
1.1210	2.0800	0.2446	1.8334	-0.0584	2.1658	-0.2257
1.1730	2.0900	0.7340	1.8682	1.6477	2.1758	0.2650
1.2270	2.0600	-0.7341	1.8781	2.1351	2.1658	-0.2257
1.2760	2.0500	-1.2234	1.8682	1.6477	2.1708	0.0197
1.3240	2.0750	-0.0000	1.8831	2.3789	2.1658	-0.2257
1.3790	2.0700	-0.2447	1.8682	1.6477	2.1808	0.5104
1.4280	2.0750	-0.0000	1.8632	1.4039	2.1708	0.0197
1.4780	2.0600	-0.7341	1.8383	0.1853	2.1658	-0.2257
1.5270	2.0700	-0.2447	1.8184	-0.7896	2.1708	0.0197
1.5790	2.0900	0.7340	2.1417	15.0528	2.1708	0.0197
1.6330	1.9751	-4.8935	1.8831	2.3789	2.1357	-1.6978
1.6800	2.0650	-0.4894	1.8284	-0.3022	2.1858	0.7557
1.7280	2.0600	-0.7341	1.8334	-0.0584	2.1658	-0.2257
1.7770	2.0900	0.7340	1.8284	-0.3022	2.1658	-0.2257
1.8270	2.0650	-0.4894	1.8383	0.1853	2.1708	0.0197
1.8810	2.0750	-0.0000	1.8383	0.1853	2.1708	0.0197
1.9310	2.0800	0.2446	1.8433	0.4290	2.1708	0.0197
1.9820	2.0800	0.2446	1.8383	0.1853	2.1758	0.2650
2.0340	2.0750	-0.0000	1.8383	0.1853	2.1758	0.2650
2.0860	2.0750	-0.0000	1.8334	-0.0584	2.1708	0.0197
2.2190	2.0750	-0.0000	1.8383	0.1853	2.1708	0.0197

Y(2)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0010	2.0750	0.0367	1.8334	-0.0121	2.1758	0.2086
0.0510	2.0750	0.0367	1.8334	-0.0121	2.1708	-0.0367
0.1050	2.0700	-0.2080	1.8334	-0.0121	2.1658	-0.2821
0.1550	2.0750	0.0367	1.8284	-0.2558	2.1708	-0.0367
0.2050	2.0750	0.0367	1.8334	-0.0121	2.1758	0.2086
0.2570	2.0750	0.0367	1.8334	-0.0121	2.1708	-0.0367
0.3110	2.0750	0.0367	1.8334	-0.0121	2.1758	0.2086
0.3610	2.0750	0.0367	1.8334	-0.0121	2.1708	-0.0367
0.4140	2.0700	-0.2080	1.8334	-0.0121	2.1708	-0.0367
0.4670	2.0850	0.5260	1.8383	0.2316	2.1758	0.2086
0.5160	2.0800	0.2813	1.8383	0.2316	2.1708	-0.0367
0.5650	2.0750	0.0367	1.8334	-0.0121	2.1708	-0.0367
0.6180	2.0700	-0.2080	1.8334	-0.0121	2.1758	0.2086
0.6680	2.0700	-0.2080	1.8284	-0.2558	2.1758	0.2086
0.7180	2.0750	0.0367	1.8334	-0.0121	2.1708	-0.0367
0.7670	2.0750	0.0367	1.8334	-0.0121	2.1658	-0.2821
0.8180	2.0700	-0.2080	1.8383	0.2316	2.1708	0.2086
0.8730	2.0750	0.0367	1.8334	-0.0121	2.1708	-0.0367
0.9230	2.0800	0.2813	1.8383	0.2316	2.1758	0.2086
0.9750	2.0750	0.0367	1.8334	-0.0121	2.1758	0.2086
1.0290	2.0800	0.2813	1.8334	-0.0121	2.1658	-0.2821
1.0780	2.0800	0.2813	1.8383	0.2316	2.1708	-0.0367
1.1290	2.0750	0.0367	1.8383	0.2316	2.1758	0.2086
1.1810	2.0700	-0.2080	1.8334	-0.0121	2.1758	0.2086
1.2290	2.0800	0.2813	1.8334	-0.0121	2.1658	0.2086
1.2790	2.0650	-0.4527	1.8284	-0.2558	2.1708	-0.0367
1.3290	2.0700	-0.2080	1.8334	-0.0121	2.1658	-0.2821
1.3790	2.0700	-0.2080	1.8334	-0.0121	2.1708	-0.0367
1.4340	2.0850	0.5260	1.8383	0.2316	2.1708	-0.0367
1.4820	2.0800	0.2813	1.8383	0.2316	2.1758	0.2086
1.5320	2.0750	0.0367	1.8334	-0.0121	2.1708	-0.0367
1.5830	2.0750	0.0367	1.8334	-0.0121	2.1708	-0.0367
1.6380	2.0700	-0.2080	1.8234	-0.4996	2.1708	-0.0367
1.6860	2.0700	-0.2080	1.8334	-0.0121	2.1708	-0.0367
1.7360	2.0750	0.0367	1.8184	-0.7433	2.1708	-0.0367
1.7850	2.0750	0.0367	1.8284	-0.2558	2.1708	-0.0367
1.8400	2.0600	-0.6974	1.7886	-2.2057	2.1808	0.4540
1.8890	2.0750	0.0367	1.7687	-3.1806	2.1908	0.9447
1.9360	2.0750	0.0367	1.7538	-3.9118	2.1758	0.2086
1.9850	2.0900	0.7707	1.7737	-2.9369	2.1808	0.4540
2.0350	2.0950	1.0154	1.8234	-0.4996	2.1758	0.2086
2.0880	2.0500	-1.1867	1.8383	0.2316	2.1758	0.2086
2.1370	2.0700	-0.2080	1.8731	1.9377	2.1708	-0.0367
2.1850	2.0650	-0.4527	1.8781	2.1814	2.1708	-0.0367
2.2340	2.1149	1.9940	1.8781	2.1814	2.1758	0.2086
2.2830	2.0500	-1.1667	1.8731	1.9377	2.1357	-1.7542
2.3320	2.0750	0.0367	1.8582	1.2065	2.1658	-0.2821
2.3840	2.0700	-0.2080	1.8682	1.6940	2.1858	0.6993
2.4370	2.0700	-0.2080	1.8433	0.4753	2.1758	0.2086
2.4870	2.0800	0.2813	1.8533	0.9628	2.1658	-0.2821
2.5400	2.0800	0.2813	1.8483	0.7191	2.1608	-0.5274
2.5940	2.0750	0.0367	1.8483	0.7191	2.1758	0.2086
2.6430	2.0700	-0.2080	1.8334	-0.0121	2.1708	-0.0367
2.6940	2.0750	0.0367	1.8383	0.2316	2.1658	-0.2821
2.7480	2.0750	0.0367	1.8334	-0.0121	2.1708	-0.0367
2.7980	2.0700	-0.2080	1.8334	-0.0121	2.1708	-0.0367
2.8490	2.0800	0.2813	1.8383	0.2316	2.1658	-0.2821
2.9020	2.0700	-0.2080	1.8383	0.2316	2.1758	0.2086
2.9520	2.0800	0.2813	1.8284	-0.2558	2.1708	-0.0367
3.0010	2.0750	0.0367	1.8284	-0.2558	2.1658	-0.2821
3.0560	2.0750	0.0367	1.8383	0.2316	2.1758	0.2086
3.1040	2.0700	-0.2080	1.8284	-0.2558	2.1708	-0.0367
3.1540	2.0700	-0.2080	1.8234	-0.4996	2.1708	-0.0367
3.2030	2.0800	0.2813	1.8284	-0.2558	2.1708	-0.0367
3.2520	2.0800	0.2813	1.8334	-0.0121	2.1758	0.2086
3.3040	2.0750	0.0367	1.8483	0.7191	2.1658	-0.2821
3.3570	2.0750	0.0367	1.8383	0.2316	2.1758	0.2086
3.4060	2.0800	0.2813	1.8433	0.4753	2.1708	-0.0367
3.4550	2.0800	0.2813	1.8334	-0.0121	2.1708	-0.0367
3.5070	2.0800	0.2813	1.8334	-0.0121	2.1708	-0.0367
3.5600	2.0750	0.0367	1.8334	-0.0121	2.1708	-0.0367
3.6100	2.0750	0.0367	1.8234	-0.4996	2.1658	-0.2821
3.6590	2.0750	0.0367	1.8334	-0.0121	2.1658	-0.2821
3.7180	1.9751	-4.8568	1.8085	-1.2308	2.1357	-1.7542
3.7680	2.0700	-0.2080	1.8731	1.9377	2.1708	-0.0367
3.8210	2.0750	0.0367	1.8383	0.2316	2.1708	-0.0367
3.8740	2.0750	0.0367	1.8383	0.2316	2.1708	-0.0367
3.9280	2.0800	0.2813	1.8334	-0.0121	2.1758	0.2086
3.9840	2.0750	0.0367	1.8334	-0.0121	2.1708	-0.0367
4.0380	2.0750	0.0367	1.8284	-0.2558	2.1708	-0.0367
4.0940	2.0800	0.2813	1.8383	0.2316	2.1708	-0.0367
4.1450	2.0800	0.2813	1.8334	-0.0121	2.1758	0.2086
4.2020	2.0750	0.0367	1.8334	-0.0121	2.1708	-0.0367
4.2550	2.0750	0.0367	1.8334	-0.0121	2.1708	-0.0367
4.3100	2.0700	-0.2080	1.8334	-0.0121	2.1708	-0.0367
4.3630	2.0800	0.2813	1.8334	-0.0121	2.1708	-0.0367
4.4200	2.0700	-0.2080	1.8334	-0.0121	2.1658	-0.2821
4.4710	2.0750	0.0367	1.8284	-0.2558	2.1708	-0.0367
4.5240	2.0800	0.2813	1.8383	0.2316	2.1708	-0.0367
4.5800	2.0750	0.0367	1.8334	-0.0121	2.1708	-0.0367
4.6340	2.0700	-0.2080	1.8383	0.2316	2.1758	0.2086
4.6890	2.0750	0.0367	1.8334	-0.0121	2.1758	0.2086
4.7440	2.0750	0.0367	1.8383	0.2316	2.1708	-0.0367
4.8080	2.0800	0.2813	1.8334	-0.0121	2.1708	-0.0367

Y(3)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0700	-0.3304	1.8334	0.0196	2.1758	0.2503
0.1280	2.0750	-0.0857	1.8334	0.0196	2.1708	0.0050
0.2600	2.0800	0.1590	1.8334	0.0196	2.1658	-0.2404
0.3920	2.0800	0.1590	1.8284	-0.2242	2.1708	0.0050
0.4780	2.0800	0.1590	1.8383	0.2633	2.1708	0.0050
0.5320	2.0750	-0.0857	1.8334	0.0196	2.1758	0.2503
0.5800	2.0800	0.1590	1.8334	0.0196	2.1608	-0.4857
0.6290	2.0800	0.1590	1.8334	0.0196	2.1708	0.0050
0.6790	2.0750	-0.0857	1.8334	0.0196	2.1708	0.0050
0.7310	2.0700	-0.3304	1.8334	0.0196	2.1658	-0.2404
0.7850	2.0700	-0.3304	1.8334	0.0196	2.1708	0.0050
0.8350	2.0700	-0.3304	1.8334	0.0196	2.1658	-0.2404
0.8860	2.0750	-0.0857	1.8334	0.0196	2.1658	-0.2404
0.9400	2.0750	-0.0857	1.8334	0.0196	2.1708	0.0050
0.9900	2.0750	-0.0857	1.8334	0.0196	2.1658	-0.2404
1.0420	2.0800	0.1590	1.8383	0.2633	2.1658	-0.2404
1.0960	2.0800	0.1590	1.8383	0.2633	2.1708	0.0050
1.1450	2.0750	-0.0857	1.8284	-0.2242	2.1758	0.2503
1.1940	2.0750	-0.0857	1.8383	0.2633	2.1708	0.0050
1.2470	2.0850	0.4037	1.8334	0.0196	2.1708	0.0050
1.3020	2.0800	0.1590	1.8383	0.2633	2.1758	0.2503
1.3530	2.0800	0.1590	1.8383	0.2633	2.1758	0.2503
1.4070	2.0800	0.1590	1.8234	-0.4679	2.1708	0.0050
1.4570	2.0700	-0.3304	1.8135	-0.9553	2.1708	0.0050
1.5060	2.0800	0.1590	1.8035	-1.4428	2.1758	0.2503
1.5570	2.0750	-0.0857	1.7985	-1.6865	2.1507	-0.9764
1.6090	2.0850	0.4037	1.7936	-1.9303	2.1758	0.2503
1.6580	2.0800	0.1590	1.7936	-1.9303	2.1658	-0.2404
1.7070	2.0700	-0.3304	1.7985	-1.6865	2.1658	-0.2404
1.7560	2.0700	-0.3304	1.8085	-1.1991	2.1507	-0.9764
1.8050	2.0800	0.1590	1.7936	-1.9303	2.1658	-0.2404
1.8550	2.0750	-0.0857	1.8334	0.0196	2.1758	0.2503
1.9100	2.0700	-0.3304	1.8533	0.9945	2.1658	-0.2404
1.9590	2.0900	0.6483	1.8632	1.4819	2.1708	0.0050
2.0110	2.0650	-0.5750	1.8682	1.7257	2.1658	-0.2404
2.0630	2.0750	-0.0857	1.8831	2.4568	2.1758	0.2503
2.1120	2.0700	-0.3304	1.8731	1.9694	2.1658	-0.2404
2.1620	2.0750	-0.0857	1.8781	2.2131	2.1808	0.4957
2.2110	2.0750	-0.0857	1.8483	0.7507	2.1758	0.2503
2.2630	2.0650	-0.5750	1.8433	0.5070	2.1658	-0.2404
2.3150	1.9901	-4.2451	1.7637	-3.3926	2.1457	-1.2218
2.3630	2.1000	1.1377	1.8582	1.2382	2.1708	0.0050
2.4120	2.0600	-0.8197	1.8284	-0.2242	2.1758	0.2503
2.4630	2.0800	0.1590	1.8383	0.2633	2.1758	0.2503
2.5170	2.0650	-0.5750	1.8334	0.0196	2.1708	0.0050
2.5660	2.0800	0.1590	1.8383	0.2633	2.1708	0.0050
2.6180	2.0750	-0.0857	1.8334	0.0196	2.1708	0.0050
2.6740	2.0750	-0.0857	1.8334	0.0196	2.1708	0.0050
2.7240	2.0750	-0.0857	1.8334	0.0196	2.1708	0.0050
2.7720	2.0800	0.1590	1.8334	0.0196	2.1708	0.0050

Y(4)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0750	-0.0489	1.8334	0.0244	2.1708	-0.0196
0.0460	2.0750	-0.0489	1.8383	0.2682	2.1708	-0.0196
0.0950	2.0750	-0.0489	1.8334	0.0244	2.1708	-0.0196
0.1470	2.0700	-0.2936	1.8334	0.0244	2.1758	0.2258
0.1970	2.0800	0.1958	1.8334	0.0244	2.1708	-0.0196
0.2480	2.0750	-0.0489	1.8433	0.5119	2.1708	-0.0196
0.2970	2.0750	-0.0489	1.8383	0.2682	2.1658	-0.2649
0.3480	2.0800	0.1958	1.8383	0.2682	2.1708	-0.0196
0.4020	2.0750	-0.0489	1.8284	-0.2193	2.1758	0.2258
0.4520	2.0750	-0.0489	1.8284	-0.2193	2.1708	-0.0196
0.5050	2.0800	0.1958	1.8284	-0.2193	2.1708	-0.0196
0.5590	2.0800	0.1958	1.8334	0.0244	2.1708	-0.0196
0.6090	2.0800	0.1958	1.8383	0.2682	2.1708	-0.0196
0.6620	2.0750	-0.0489	1.8383	0.2682	2.1658	-0.2649
0.7110	2.0750	-0.0489	1.8284	-0.2193	2.1658	-0.2649
0.7590	2.0750	-0.0489	1.8284	-0.2193	2.1708	-0.0196
0.8080	2.0800	0.1958	1.8334	0.0244	2.1758	0.2258
0.8580	2.0800	0.1958	1.8334	0.0244	2.1708	-0.0196
0.9100	2.0800	0.1958	1.8383	0.2682	2.1758	0.2258
0.9650	2.0750	-0.0489	1.8334	0.0244	2.1658	-0.2649
1.0140	2.0700	-0.2936	1.8284	-0.2193	2.1658	-0.2649
1.0630	2.0800	0.1958	1.8284	-0.2193	2.1708	-0.0196
1.1160	2.0800	0.1958	1.8334	0.0244	2.1708	-0.0196
1.1710	2.0800	0.1958	1.8334	0.0244	2.1658	-0.2649
1.2230	2.0750	-0.0489	1.8334	0.0244	2.1658	-0.2649
1.2760	2.0750	-0.0489	1.8334	0.0244	2.1658	-0.2649
1.3260	2.0800	0.1958	1.8234	-0.4630	2.1708	-0.0196
1.3760	2.0750	-0.0489	1.8234	-0.4630	2.1708	-0.0196
1.4290	2.0800	0.1958	1.8184	-0.7068	2.1708	-0.0196
1.4830	2.0800	0.1958	1.8085	-1.1942	2.1658	-0.2649
1.5320	2.0750	-0.0489	1.8035	-1.4379	2.1758	0.2258
1.5830	2.0750	-0.0489	1.8035	-1.4379	2.1658	-0.2649
1.6370	2.0850	0.4405	1.8035	-1.4379	2.1557	-0.7556
1.6850	2.0800	0.1958	1.7936	-1.9254	2.1658	-0.2649
1.7340	2.0800	0.1958	1.8035	-1.4379	2.1708	-0.0196
1.7840	2.0750	-0.0489	1.7936	-1.9254	2.1758	0.2258
1.8390	2.0500	-1.2722	1.8234	-0.4630	2.1658	-0.2649
1.8880	2.0650	-0.5382	1.8184	-0.7068	2.1808	0.4712
1.9360	2.0450	-1.5169	1.8781	2.2180	2.1658	-0.2649
1.9840	2.0700	-0.2936	1.8930	2.9492	2.1507	-1.0010
2.0340	2.0800	0.1958	1.8930	2.9492	2.1858	0.7165
2.0870	2.0750	-0.0489	1.8582	1.2431	2.1858	0.7165
2.1360	2.0700	-0.2936	1.8483	0.7556	2.1858	0.7165
2.1860	2.0700	-0.2936	1.8433	0.5119	2.1958	1.2072
2.2340	2.0750	-0.0489	1.8483	0.7556	2.1808	0.4712
2.2860	2.0750	-0.0489	1.8533	0.9993	2.1658	-0.2649
2.3400	2.0750	-0.0489	1.8284	-0.2193	2.1708	-0.0196
2.3900	2.0700	-0.2936	1.8184	-0.7068	2.1608	-0.5102
2.4380	2.1848	5.3339	1.8483	0.7556	2.1708	-0.0196
2.4880	2.0750	-0.0489	1.8085	-1.1942	2.1708	-0.0196
2.5430	2.0800	0.1958	1.8284	-0.2193	2.1708	-0.0196
2.5930	2.0850	0.4405	1.8334	0.0244	2.1658	-0.2649
2.6420	2.0750	-0.0489	1.8334	0.0244	2.1658	-0.2649
2.6960	2.0800	0.1958	1.8334	0.0244	2.1758	0.2258
2.7580	2.0850	0.4405	1.8383	0.2682	2.1658	-0.2649
2.8100	2.0750	-0.0489	1.8334	0.0244	2.1708	-0.0196
2.8600	2.0700	-0.2936	1.8334	0.0244	2.1708	-0.0196
2.9130	2.0700	-0.2936	1.8383	0.2682	2.1658	-0.2649

Y(5)						
Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0800	0.1688	1.8284	-0.2632	2.1708	-0.0171
0.0450	2.0750	-0.0758	1.8334	-0.0194	2.1708	-0.0171
0.0980	2.0750	-0.0758	1.8334	-0.0194	2.1758	0.2283
0.1520	2.0800	0.1688	1.8334	-0.0194	2.1708	-0.0171
0.2020	2.0800	0.1688	1.8334	-0.0194	2.1758	0.2283
0.2550	2.0700	-0.3205	1.8284	-0.2632	2.1758	0.2283
0.3080	2.0750	-0.0758	1.8334	-0.0194	2.1758	0.2283
0.3580	2.0750	-0.0758	1.8334	-0.0194	2.1708	-0.0171
0.4110	2.0750	-0.0758	1.8334	-0.0194	2.1708	-0.0171
0.4660	2.0750	-0.0758	1.8383	0.2243	2.1708	-0.0171
0.5150	2.0800	0.1688	1.8383	0.2243	2.1758	0.2283
0.5670	2.0750	-0.0758	1.8334	-0.0194	2.1758	0.2283
0.6220	2.0800	0.1688	1.8334	-0.0194	2.1708	-0.0171
0.6720	2.0700	-0.3205	1.8334	-0.0194	2.1708	-0.0171
0.7260	2.0800	0.1688	1.8383	0.2243	2.1708	-0.0171
0.7750	2.0700	-0.3205	1.8284	-0.2632	2.1708	-0.0171
0.8250	2.0750	-0.0758	1.8334	-0.0194	2.1708	-0.0171
0.8760	2.0650	-0.5652	1.8284	-0.2632	2.1708	-0.0171
0.9290	2.0750	-0.0758	1.8284	-0.2632	2.1658	-0.2625
0.9820	2.0800	0.1688	1.8334	-0.0194	2.1708	-0.0171
1.0320	2.0800	0.1688	1.8184	-0.7506	2.1708	-0.0171
1.0860	2.0800	0.1688	1.8135	-0.9943	2.1608	-0.5078
1.1380	2.0750	-0.0758	1.7936	-1.9693	2.1758	0.2283
1.1870	2.0750	-0.0758	1.7886	-2.2130	2.1758	0.2283
1.2370	2.0900	0.6582	1.7936	-1.9693	2.1708	-0.0171
1.2910	2.0700	-0.3205	1.7936	-1.9693	2.1808	0.4736
1.3400	2.0700	-0.3205	1.8085	-1.2381	2.1658	-0.2625
1.3900	2.0900	0.6582	1.8085	-1.2381	2.1758	0.2283
1.4370	2.1000	1.1475	1.8334	-0.0194	2.1608	-0.5078
1.4880	2.0550	-1.0545	1.8533	0.9555	2.1758	0.2283
1.5420	2.0700	-0.3205	1.8682	1.6867	2.1658	-0.2625
1.5910	2.0850	0.4135	1.8781	2.1741	2.1758	0.2283
1.6400	2.0650	-0.5652	1.8632	1.4429	2.1858	0.7189
1.6870	2.0800	0.1688	1.8632	1.4429	2.1658	-0.2625
1.7390	2.1000	1.1475	1.8682	1.6867	2.1808	0.4736
1.7930	2.0650	-0.5652	1.8632	1.4429	2.1758	0.2283
1.8420	2.1299	2.6155	1.9826	7.2924	2.2008	1.4550
1.8900	2.0500	-1.2992	1.7687	-3.1879	2.1958	1.2097
1.9370	2.0800	0.1688	1.7936	-1.9693	2.1658	-0.2625
1.9890	2.0750	-0.0758	1.8234	-0.5069	2.1858	0.7189
2.0420	2.0550	-1.0545	1.8284	-0.2632	2.1758	0.2283
2.0910	2.0800	0.1688	1.8433	0.4680	2.1808	0.4736
2.1400	2.0800	0.1688	1.8284	-0.2632	2.1758	0.2283
2.1920	2.0700	-0.3205	1.8383	0.2243	2.1658	-0.2625
2.2460	2.0800	0.1688	1.8383	0.2243	2.1708	-0.0171
2.2960	2.0800	0.1688	1.8383	0.2243	2.1708	-0.0171
2.3460	2.0750	-0.0758	1.8383	0.2243	2.1708	-0.0171
2.4000	2.0700	-0.3205	1.8284	-0.2632	2.1758	0.2283

Negative Y(1)						
Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0750	-0.0612	1.8334	0.1000	2.1708	0.0663
0.0450	2.0700	-0.3059	1.8284	-0.1437	2.1708	0.0663
0.0950	2.0800	0.1834	1.8334	0.1000	2.1658	-0.1790
0.1440	2.0700	-0.3059	1.8383	0.3437	2.1708	0.0663
0.1970	2.0800	0.1834	1.8284	-0.1437	2.1658	-0.1790
0.2510	2.0800	0.1834	1.8284	-0.1437	2.1708	0.0663
0.3000	2.0750	-0.0612	1.8334	0.1000	2.1708	0.0663
0.3530	2.0700	-0.3059	1.8334	0.1000	2.1658	-0.1790
0.4070	2.0650	-0.5506	1.8234	-0.3875	2.1708	0.0663
0.4560	2.0750	-0.0612	1.8334	0.1000	2.1658	-0.1790
0.5020	2.0700	-0.3059	1.8284	-0.1437	2.1708	0.0663
0.5530	2.0750	-0.0612	1.8284	-0.1437	2.1758	0.3117
0.6070	2.0700	-0.3059	1.8234	-0.3875	2.1658	-0.1790
0.6560	2.0750	-0.0612	1.8284	-0.1437	2.1708	0.0663
0.7040	2.0750	-0.0612	1.8334	0.1000	2.1708	0.0663
0.7530	2.0800	0.1834	1.8334	0.1000	2.1658	-0.1790
0.8040	2.0750	-0.0612	1.8334	0.1000	2.1658	-0.1790
0.8590	2.0750	-0.0612	1.8334	0.1000	2.1658	-0.1790
0.9080	2.0750	-0.0612	1.8334	0.1000	2.1658	-0.1790
0.9570	2.0750	-0.0612	1.8284	-0.1437	2.1658	-0.1790
1.0100	2.0750	-0.0612	1.8334	0.1000	2.1708	0.0663
1.0600	2.0700	-0.3059	1.8334	0.1000	2.1658	-0.1790
1.1090	2.0700	-0.3059	1.8234	-0.3875	2.1708	0.0663
1.1580	2.0750	-0.0612	1.8334	0.1000	2.1658	-0.1790
1.2070	2.0800	0.1834	1.8334	0.1000	2.1658	-0.1790
1.2600	2.0750	-0.0612	1.8334	0.1000	2.1658	-0.1790
1.3130	2.0800	0.1834	1.8433	0.5875	2.1708	0.0663
1.3620	2.0700	-0.3059	1.8582	1.3186	2.1658	-0.1790
1.4130	2.0750	-0.0612	1.8781	2.2936	2.1758	0.3117
1.4660	2.0750	-0.0612	1.8831	2.5373	2.1557	-0.6697
1.5150	2.0800	0.1834	1.8881	2.7810	2.1658	-0.1790
1.5640	2.0900	0.6728	1.8731	2.0498	2.1658	-0.1790
1.6130	2.0850	0.4281	1.8632	1.5624	2.1708	0.0663
1.6630	2.0650	-0.5506	1.8383	0.3437	2.1608	-0.4244
1.7160	2.0750	-0.0612	1.7985	-1.6061	2.2108	2.0291
1.7650	2.0850	0.4281	1.8035	-1.3624	2.1808	0.5570
1.8140	2.0850	0.4281	1.7886	-2.0936	2.1708	0.0663
1.8630	2.0750	-0.0612	1.7836	-2.3373	2.1658	-0.1790
1.9140	2.0800	0.1834	1.7836	-2.3373	2.1658	-0.1790
1.9670	2.0750	-0.0612	1.7836	-2.3373	2.1557	-0.6697
2.0160	2.0750	-0.0612	1.7936	-1.8498	2.1758	0.3117
2.0650	2.0750	-0.0612	1.8184	-0.6312	2.1708	0.0663
2.1150	2.0800	0.1834	1.8383	0.3437	2.1758	0.3117
2.1680	2.0750	-0.0612	1.8383	0.3437	2.1708	0.0663
2.2180	2.0700	-0.3059	1.8234	-0.3875	2.1658	-0.1790
2.2680	2.0700	-0.3059	1.8184	-0.6312	2.1658	-0.1790
2.3170	2.0700	-0.3059	1.8234	-0.3875	2.1658	-0.1790
2.3710	2.0800	0.1834	1.8184	-0.6312	2.1708	0.0663
2.4190	2.0750	-0.0612	1.8284	-0.1437	2.1658	-0.1790
2.4680	2.0750	-0.0612	1.8383	0.3437	2.1758	0.3117
2.5180	2.0800	0.1834	1.8334	0.1000	2.1658	-0.1790
2.5680	2.0850	0.4281	1.8334	0.1000	2.1658	-0.1790
2.6230	2.0700	-0.3059	1.8334	0.1000	2.1708	0.0663
2.6720	2.0800	0.1834	1.8334	0.1000	2.1758	0.3117
2.7220	2.0750	-0.0612	1.8334	0.1000	2.1758	0.3117
2.7740	2.0750	-0.0612	1.8284	-0.1437	2.1708	0.0663
2.8280	2.0700	-0.3059	1.8284	-0.1437	2.1708	0.0663
2.8760	2.0700	-0.3059	1.8334	0.1000	2.1658	-0.1790

Negative Y(2)						
Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0750	-0.1199	1.8284	-0.2290	2.1758	0.2798
0.0450	2.0750	-0.1199	1.8334	0.0147	2.1708	0.0344
0.0960	2.0750	-0.1199	1.8334	0.0147	2.1708	0.0344
0.1510	2.0800	0.1248	1.8383	0.2584	2.1658	-0.2109
0.2010	2.0800	0.1248	1.8334	0.0147	2.1708	0.0344
0.2520	2.0800	0.1248	1.8334	0.0147	2.1708	0.0344
0.3060	2.0800	0.1248	1.8334	0.0147	2.1708	0.0344
0.3560	2.0750	-0.1199	1.8383	0.2584	2.1658	-0.2109
0.4060	2.0750	-0.1199	1.8334	0.0147	2.1708	0.0344
0.4610	2.0800	0.1248	1.8334	0.0147	2.1658	-0.2109
0.5110	2.0750	-0.1199	1.8334	0.0147	2.1708	0.0344
0.5600	2.0700	-0.3645	1.8284	-0.2290	2.1708	0.0344
0.6110	2.0750	-0.1199	1.8334	0.0147	2.1708	0.0344
0.6660	2.0750	-0.1199	1.8334	0.0147	2.1708	0.0344
0.7160	2.0700	-0.3645	1.8334	0.0147	2.1708	0.0344
0.7670	2.0800	0.1248	1.8334	0.0147	2.1708	0.0344
0.8210	2.0750	-0.1199	1.8334	0.0147	2.1708	0.0344
0.8710	2.0800	0.1248	1.8334	0.0147	2.1708	0.0344
0.9210	2.0800	0.1248	1.8334	0.0147	2.1708	0.0344
0.9730	2.0800	0.1248	1.8334	0.0147	2.1658	-0.2109
1.0260	2.0800	0.1248	1.8334	0.0147	2.1708	0.0344
1.0760	2.0750	-0.1199	1.8284	-0.2290	2.1708	0.0344
1.1280	2.0850	0.3695	1.8334	0.0147	2.1758	0.2798
1.1810	2.0800	0.1248	1.8284	-0.2290	2.1658	-0.2109
1.2310	2.0800	0.1248	1.8284	-0.2290	2.1808	0.5251
1.2800	2.0750	-0.1199	1.8383	0.2584	2.1708	0.0344
1.3330	2.0700	-0.3645	1.8533	0.9896	2.1758	0.2798
1.3860	2.0650	-0.6092	1.8731	1.9645	2.1708	0.0344
1.4350	2.0750	-0.1199	1.8930	2.9394	2.1808	0.5251
1.4840	2.0750	-0.1199	1.8930	2.9394	2.1658	-0.2109
1.5370	2.0600	-0.8539	1.8781	2.2083	2.1758	0.2798
1.5900	2.0750	-0.1199	1.8632	1.4771	2.1608	-0.4563
1.6380	2.0800	0.1248	1.8433	0.5021	2.1758	0.2798
1.6890	2.0800	0.1248	1.8284	-0.2290	2.1708	0.0344
1.7490	2.0700	-0.3645	1.8234	-0.4728	2.1708	0.0344
1.8020	2.0700	-0.3645	1.7936	-1.9351	2.1557	-0.7016
1.8550	2.0800	0.1248	1.7886	-2.1789	2.1608	-0.4563
1.9040	2.0800	0.1248	1.7737	-2.9101	2.1658	-0.2109
1.9540	2.0800	0.1248	1.7886	-2.1789	2.1708	0.0344
2.0080	2.0750	-0.1199	1.8184	-0.7165	2.1708	0.0344
2.0560	2.0800	0.1248	1.8334	0.0147	2.1758	0.2798
2.1060	2.0750	-0.1199	1.8184	-0.7165	2.1608	-0.4563
2.1550	2.0700	-0.3645	1.8135	-0.9602	2.1658	-0.2109
2.2110	2.0800	0.1248	1.8284	-0.2290	2.1658	-0.2109
2.2600	2.0800	0.1248	1.8383	0.2584	2.1708	0.0344
2.3090	2.0750	-0.1199	1.8184	-0.7165	2.1708	0.0344
2.3580	2.0750	-0.1199	1.8334	0.0147	2.1708	0.0344
2.4120	2.0800	0.1248	1.8383	0.2584	2.1708	0.0344
2.4610	2.0750	-0.1199	1.8334	0.0147	2.1708	0.0344
2.5110	2.0800	0.1248	1.8334	0.0147	2.1658	-0.2109
2.5600	2.0700	-0.3645	1.8383	0.2584	2.1658	-0.2109
2.6110	2.0700	-0.3645	1.8334	0.0147	2.1708	0.0344
2.6660	2.0700	-0.3645	1.8284	-0.2290	2.1708	0.0344
2.7150	2.0750	-0.1199	1.8334	0.0147	2.1658	-0.2109
2.7640	2.0800	0.1248	1.8334	0.0147	2.1758	0.2798
2.8160	2.0700	-0.3645	1.8284	-0.2290	2.1708	0.0344

Negative Y(3)						
Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0800	0.1810	1.8334	0.0293	2.1708	-0.0122
0.0510	2.0750	-0.0637	1.8334	0.0293	2.1708	-0.0122
0.1020	2.0800	0.1810	1.8383	0.2730	2.1758	0.2332
0.1520	2.0800	0.1810	1.8334	0.0293	2.1708	-0.0122
0.2070	2.0750	-0.0637	1.8284	-0.2144	2.1708	-0.0122
0.2570	2.0750	-0.0637	1.8383	0.2730	2.1608	-0.5029
0.3080	2.0800	0.1810	1.8334	0.0293	2.1708	-0.0122
0.3630	2.0750	-0.0637	1.8334	0.0293	2.1658	-0.2575
0.4120	2.0800	0.1810	1.8334	0.0293	2.1708	-0.0122
0.4650	2.0800	0.1810	1.8334	0.0293	2.1708	-0.0122
0.5210	2.0800	0.1810	1.8284	-0.2144	2.1708	-0.0122
0.5700	2.0750	-0.0637	1.8334	0.0293	2.1708	-0.0122
0.6220	2.0800	0.1810	1.8334	0.0293	2.1708	-0.0122
0.6770	2.0750	-0.0637	1.8383	0.2730	2.1758	0.2332
0.7260	2.0750	-0.0637	1.8334	0.0293	2.1708	-0.0122
0.7770	2.0750	-0.0637	1.8334	0.0293	2.1708	-0.0122
0.8320	2.0750	-0.0637	1.8383	0.2730	2.1758	0.2332
0.8820	2.0800	0.1810	1.8334	0.0293	2.1708	-0.0122
0.9340	2.0750	-0.0637	1.8334	0.0293	2.1708	-0.0122
0.9880	2.0750	-0.0637	1.8533	1.0042	2.1708	-0.0122
1.0370	2.0750	-0.0637	1.8930	2.9541	2.1758	0.2332
1.0860	2.0850	0.4257	1.9080	3.6852	2.1758	0.2332
1.1370	2.0750	-0.0637	1.8930	2.9541	2.1658	-0.2575
1.1910	2.0700	-0.3083	1.8632	1.4917	2.1758	0.2332
1.2400	2.0750	-0.0637	1.8582	1.2480	2.1708	-0.0122
1.2890	2.0800	0.1810	1.8483	0.7605	2.1658	-0.2575
1.3400	2.0750	-0.0637	1.8284	-0.2144	2.1608	-0.5029
1.3940	2.0700	-0.3083	1.8085	-1.1893	2.1758	0.2332
1.4420	2.0750	-0.0637	1.8035	-1.4331	2.1608	-0.5029
1.4910	2.0750	-0.0637	1.7737	-2.8954	2.1708	-0.0122
1.5410	2.0750	-0.0637	1.7687	-3.1392	2.1908	0.9692
1.5920	2.0850	0.4257	1.7985	-1.6768	2.1608	-0.5029
1.6460	2.0750	-0.0637	1.8184	-0.7019	2.1758	0.2332
1.6940	2.0700	-0.3083	1.7936	-1.9205	2.1658	-0.2575
1.7430	2.0750	-0.0637	1.8582	1.2480	2.1708	-0.0122
1.7960	2.0700	-0.3083	1.8234	-0.4581	2.1658	-0.2575
1.8490	2.0750	-0.0637	1.8582	1.2480	2.1708	-0.0122
1.8980	2.0800	0.1810	1.8334	0.0293	2.1658	-0.2575
1.9500	2.0800	0.1810	1.8284	-0.2144	2.1708	-0.0122
2.0050	2.0800	0.1810	1.8433	0.5168	2.1708	-0.0122
2.0540	2.0750	-0.0637	1.8284	-0.2144	2.1708	-0.0122
2.1060	2.0750	-0.0637	1.8334	0.0293	2.1758	0.2332
2.1600	2.0750	-0.0637	1.8284	-0.2144	2.1708	-0.0122
2.2090	2.0750	-0.0637	1.8284	-0.2144	2.1658	-0.2575
2.2590	2.0750	-0.0637	1.8284	-0.2144	2.1708	-0.0122
2.3110	2.0700	-0.3083	1.8284	-0.2144	2.1708	-0.0122

Negative Y(4)									
Time	X-axis		Y-axis		Z-axis				
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2			
0.0000	2.0700	-0.2544	1.8284	-0.2144	2.1708	-0.0809			
0.0450	2.0700	-0.2544	1.8334	0.0293	2.1708	-0.0809			
0.0950	2.0800	0.2349	1.8334	0.0293	2.1708	-0.0809			
0.1470	2.0750	-0.0097	1.8334	0.0293	2.1708	-0.0809			
0.1970	2.0700	-0.2544	1.8383	0.2730	2.1708	-0.0809			
0.2470	2.0750	-0.0097	1.8284	-0.2144	2.1708	-0.0809			
0.2970	2.0800	0.2349	1.8284	-0.2144	2.1758	0.1645			
0.3460	2.0750	-0.0097	1.8383	0.2730	2.1708	-0.0809			
0.4010	2.0750	-0.0097	1.8383	0.2730	2.1708	-0.0809			
0.4510	2.0750	-0.0097	1.8383	0.2730	2.1708	-0.0809			
0.5020	2.0700	-0.2544	1.8334	0.0293	2.1758	0.1645			
0.5540	2.0750	-0.0097	1.8284	-0.2144	2.1708	-0.0809			
0.6040	2.0750	-0.0097	1.8383	0.2730	2.1708	-0.0809			
0.6540	2.0700	-0.2544	1.8284	-0.2144	2.1708	-0.0809			
0.7030	2.0800	0.2349	1.8334	0.0293	2.1758	0.1645			
0.7660	2.0750	-0.0097	1.8334	0.0293	2.1758	0.1645			
0.8200	2.0800	0.2349	1.8383	0.2730	2.1708	-0.0809			
0.8720	2.0800	0.2349	1.8284	-0.2144	2.1708	-0.0809			
0.9220	2.0800	0.2349	1.8682	1.7354	2.1708	-0.0809			
0.9720	2.0750	-0.0097	1.8930	2.9541	2.1758	0.1645			
1.0270	2.0850	0.4796	1.9129	3.9290	2.1758	0.1645			
1.0760	2.0700	-0.2544	1.8930	2.9541	2.1808	0.4098			
1.1250	2.0900	0.7243	1.8682	1.7354	2.1758	0.1645			
1.1740	2.0900	0.7243	1.8582	1.2479	2.1557	-0.8169			
1.2200	2.0800	0.2349	1.8334	0.0293	2.1958	1.1459			
1.2710	2.0550	-0.9884	1.8035	-1.4331	2.1658	-0.3262			
1.3230	2.0700	-0.2544	1.7737	-2.8954	2.1908	0.9005			
1.3720	2.0800	0.2349	1.7936	-1.9205	2.1658	-0.3262			
1.4210	2.0650	-0.4991	1.7886	-2.1643	2.1758	0.1645			
1.4700	2.0650	-0.4991	1.7985	-1.6768	2.1557	-0.8169			
1.5220	2.0750	-0.0097	1.8035	-1.4331	2.1708	-0.0809			
1.5760	2.0750	-0.0097	1.8234	-0.4582	2.1608	-0.5716			
1.6260	2.0700	-0.2544	1.8383	0.2730	2.1658	-0.3262			
1.6780	2.0800	0.2349	1.8184	-0.7019	2.1758	0.1645			
1.7310	2.0850	0.4796	1.8284	-0.2144	2.1658	-0.3262			
1.7810	2.0750	-0.0097	1.8234	-0.4582	2.1708	-0.0809			
1.8320	2.0800	0.2349	1.8234	-0.4582	2.1708	-0.0809			
1.8870	2.0700	-0.2544	1.8284	-0.2144	2.1708	-0.0809			
1.9350	2.0800	0.2349	1.8334	0.0293	2.1708	-0.0809			
1.9860	2.0800	0.2349	1.8284	-0.2144	2.1708	-0.0809			
2.0390	2.0750	-0.0097	1.8383	0.2730	2.1708	-0.0809			
2.0890	2.0800	0.2349	1.8483	0.7605	2.1708	-0.0809			
2.1370	2.0700	-0.2544	1.8383	0.2730	2.1758	0.1645			
2.1850	2.0850	0.4796	1.8383	0.2730	2.1708	-0.0809			
2.2350	2.0750	-0.0097	1.8334	0.0293	2.1708	-0.0809			
2.2880	2.0750	-0.0097	1.8334	0.0293	2.1658	-0.3262			

Negative Y(5)						
Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0750	-0.1321	1.8383	0.2389	2.1708	-0.0073
0.0460	2.0750	-0.1321	1.8334	-0.0048	2.1758	0.2381
0.0960	2.0800	0.1126	1.8334	-0.0048	2.1708	-0.0073
0.1480	2.0750	-0.1321	1.8334	-0.0048	2.1708	-0.0073
0.2020	2.0750	-0.1321	1.8284	-0.2485	2.1708	-0.0073
0.2520	2.0750	-0.1321	1.8284	-0.2485	2.1758	0.2381
0.3040	2.0750	-0.1321	1.8334	-0.0048	2.1658	-0.2526
0.3580	2.0800	0.1126	1.8334	-0.0048	2.1758	0.2381
0.4080	2.0750	-0.1321	1.8334	-0.0048	2.1708	-0.0073
0.4600	2.0800	0.1126	1.8284	-0.2485	2.1708	-0.0073
0.5140	2.0800	0.1126	1.8334	-0.0048	2.1708	-0.0073
0.5640	2.0800	0.1126	1.8284	-0.2485	2.1708	-0.0073
0.6170	2.0700	-0.3767	1.8334	-0.0048	2.1808	0.4834
0.6720	2.0750	-0.1321	1.8383	0.2389	2.1758	0.2381
0.7220	2.0750	-0.1321	1.8334	-0.0048	2.1758	0.2381
0.7740	2.0850	0.3573	1.8533	0.9701	2.1708	-0.0073
0.8280	2.0700	-0.3767	1.8781	2.1888	2.1658	-0.2526
0.8770	2.0750	-0.1321	1.8930	2.9199	2.1658	-0.2526
0.9270	2.0750	-0.1321	1.8980	3.1637	2.1708	-0.0073
0.9810	2.0750	-0.1321	1.8831	2.4325	2.1708	-0.0073
1.0300	2.0600	-0.8661	1.8533	0.9701	2.1658	-0.2526
1.0790	2.0650	-0.6214	1.8433	0.4827	2.1758	0.2381
1.1280	2.0750	-0.1321	1.8334	-0.0048	2.1708	-0.0073
1.1810	2.0500	-1.3554	1.8085	-1.2235	2.1608	-0.4980
1.2340	2.0800	0.1126	1.7985	-1.7109	2.1858	0.7288
1.2830	2.0800	0.1126	1.7687	-3.1733	2.1808	0.4834
1.3330	2.0900	0.6020	1.7886	-2.1984	2.1608	-0.4980
1.3850	2.0650	-0.6214	1.7737	-2.9296	2.1808	0.4834
1.4360	2.0700	-0.3767	1.7985	-1.7109	2.1708	-0.0073
1.4860	2.0800	0.1126	1.8135	-0.9797	2.1658	-0.2526
1.5350	2.0800	0.1126	1.8284	-0.2485	2.1708	-0.0073
1.5900	2.0800	0.1126	1.8284	-0.2485	2.1708	-0.0073
1.6400	2.0700	-0.3767	1.8234	-0.4923	2.1708	-0.0073
1.6910	2.0700	-0.3767	1.8383	0.2389	2.1658	-0.2526
1.7490	2.0700	-0.3767	1.8334	-0.0048	2.1758	0.2381
1.7990	2.0700	-0.3767	1.8334	-0.0048	2.1708	-0.0073
1.8500	2.0700	-0.3767	1.8284	-0.2485	2.1708	-0.0073
1.9050	2.0800	0.1126	1.8334	-0.0048	2.1708	-0.0073
1.9550	2.0750	-0.1321	1.8334	-0.0048	2.1708	-0.0073

Pos X-Pos Y (1)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0700	-0.2814	1.8334	0.0683	2.1708	0.1374
0.0530	2.0750	-0.0367	1.8284	-0.1754	2.1708	0.1374
0.1020	2.0800	0.2079	1.8334	0.0683	2.1658	-0.1079
0.1520	2.0800	0.2079	1.8334	0.0683	2.1708	0.1374
0.2030	2.0750	-0.0367	1.8334	0.0683	2.1708	0.1374
0.2570	2.0800	0.2079	1.8284	-0.1754	2.1658	-0.1079
0.3070	2.0750	-0.0367	1.8334	0.0683	2.1658	-0.1079
0.3570	2.0700	-0.2814	1.8334	0.0683	2.1708	0.1374
0.4110	2.0700	-0.2814	1.8334	0.0683	2.1708	0.1374
0.4600	2.0800	0.2079	1.8334	0.0683	2.1608	-0.3533
0.5100	2.0750	-0.0367	1.8234	-0.4191	2.1708	0.1374
0.5610	2.0700	-0.2814	1.8284	-0.1754	2.1708	0.1374
0.6150	2.0850	0.4526	1.8284	-0.1754	2.1708	0.1374
0.6640	2.0700	-0.2814	1.8284	-0.1754	2.1658	-0.1079
0.7130	2.0350	-1.9941	1.7936	-1.8815	2.1658	-0.1079
0.7670	2.0151	-2.9728	1.7786	-2.6127	2.1658	-0.1079
0.8200	2.0051	-3.4621	1.7786	-2.6127	2.1758	0.3828
0.8690	2.0051	-3.4621	1.7886	-2.1252	2.1557	-0.5986
0.9160	2.0450	-1.5048	1.8035	-1.3941	2.1457	-1.0893
0.9640	2.0550	-1.0154	1.8284	-0.1754	2.1557	-0.5986
1.0140	2.0700	-0.2814	1.8433	0.5558	2.1858	0.8735
1.0670	2.0800	0.2079	1.8433	0.5558	2.1658	-0.1079
1.1160	2.0800	0.2079	1.8731	2.0181	2.1808	0.6281
1.1630	2.1349	2.8993	1.8533	1.0432	2.1758	0.3828
1.2120	2.1299	2.6546	1.8582	1.2870	2.1608	-0.3533
1.2610	2.1049	1.4313	1.8632	1.5307	2.1708	0.1374
1.3110	2.1149	1.9206	1.8682	1.7744	2.1708	0.1374
1.3650	2.1000	1.1866	1.8533	1.0432	2.1658	-0.1079
1.4120	2.1199	2.1653	1.8731	2.0181	2.1708	0.1374
1.4610	2.1099	1.6760	1.8831	2.5056	2.1708	0.1374
1.5090	2.0550	-1.0154	1.8135	-0.9066	2.1658	-0.1079
1.5580	2.0800	0.2079	1.8334	0.0683	2.1658	-0.1079
1.6110	2.0800	0.2079	1.8334	0.0683	2.1708	0.1374
1.6640	2.0800	0.2079	1.8284	-0.1754	2.1658	-0.1079
1.7130	2.0750	-0.0367	1.8284	-0.1754	2.1708	0.1374
1.7640	2.0750	-0.0367	1.8334	0.0683	2.1658	-0.1079
1.8180	2.0750	-0.0367	1.8334	0.0683	2.1708	0.1374
1.8670	2.0800	0.2079	1.8234	-0.4191	2.1708	0.1374

Pos X-Pos Y (2)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0700	-0.2569	1.8383	0.3998	2.1658	-0.1570
0.0520	2.0750	-0.0122	1.8284	-0.0877	2.1658	-0.1570
0.1020	2.0800	0.2324	1.8334	0.1561	2.1708	0.0884
0.1510	2.0700	-0.2569	1.8284	-0.0877	2.1708	0.0884
0.2010	2.0850	0.4771	1.8334	0.1561	2.1658	-0.1570
0.2520	2.0750	-0.0122	1.8284	-0.0877	2.1708	0.0884
0.3050	2.0750	-0.0122	1.8284	-0.0877	2.1708	0.0884
0.3540	2.0750	-0.0122	1.8284	-0.0877	2.1658	-0.1570
0.4040	2.0800	0.2324	1.8334	0.1561	2.1708	0.0884
0.4570	2.0700	-0.2569	1.8334	0.1561	2.1708	0.0884
0.5090	2.0700	-0.2569	1.8234	-0.3314	2.1758	0.3337
0.5580	2.0700	-0.2569	1.8334	0.1561	2.1658	-0.1570
0.6090	2.0750	-0.0122	1.8383	0.3998	2.1708	0.0884
0.6630	2.0750	-0.0122	1.8334	0.1561	2.1758	0.3337
0.7120	2.0750	-0.0122	1.8284	-0.0877	2.1708	0.0884
0.7620	2.0750	-0.0122	1.8334	0.1561	2.1658	-0.1570
0.8150	2.0500	-1.2356	1.8135	-0.8189	2.1758	0.3337
0.8680	2.0051	-3.4376	1.7587	-3.4999	2.1658	-0.1570
0.9160	1.9751	-4.9057	1.7587	-3.4999	2.1557	-0.6477
0.9640	2.0001	-3.6823	1.7587	-3.4999	2.1457	-1.1384
1.0120	2.0350	-1.9696	1.7737	-2.7687	2.1507	-0.8930
1.0600	2.0450	-1.4803	1.8035	-1.3063	2.1507	-0.8930
1.1100	2.0850	0.4771	1.8433	0.6435	2.1958	1.3151
1.1630	2.1149	1.9451	1.8582	1.3747	2.1958	1.3151
1.2110	2.1449	3.4132	1.8781	2.3496	2.1808	0.5791
1.2590	2.1399	3.1685	1.8781	2.3496	2.1658	-0.1570
1.3080	2.1499	3.6578	1.8930	3.0808	2.1557	-0.6477
1.3560	2.1549	3.9025	1.8781	2.3496	2.1758	0.3337
1.4070	2.1199	2.1898	1.8682	1.8622	2.1708	0.0884
1.4590	2.0900	0.7218	1.8334	0.1561	2.1758	0.3337
1.5080	2.0800	0.2324	1.8284	-0.0877	2.1708	0.0884
1.5580	2.1099	1.7005	1.8632	1.6184	2.1658	-0.1570
1.6070	2.0700	-0.2569	1.8184	-0.5751	2.1708	0.0884
1.6580	2.0700	-0.2569	1.8334	0.1561	2.1708	0.0884
1.7110	2.0750	-0.0122	1.8334	0.1561	2.1708	0.0884
1.7610	2.0750	-0.0122	1.8284	-0.0877	2.1658	-0.1570
1.8110	2.0750	-0.0122	1.8284	-0.0877	2.1658	-0.1570
1.8660	2.0750	-0.0122	1.8334	0.1561	2.1708	0.0884
1.9150	2.0750	-0.0122	1.8334	0.1561	2.1708	0.0884
1.9640	2.0750	-0.0122	1.8284	-0.0877	2.1708	0.0884
2.0160	2.0800	0.2324	1.8334	0.1561	2.1708	0.0884
2.0700	2.0800	0.2324	1.8334	0.1561	2.1708	0.0884
2.1190	2.0800	0.2324	1.8284	-0.0877	2.1658	-0.1570
2.1670	2.0850	0.4771	1.8334	0.1561	2.1708	0.0884

Pos X-Pos Y (3)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0750	-0.1076	1.8234	-0.3168	2.1708	0.1276
0.0510	2.0800	0.1370	1.8334	0.1707	2.1708	0.1276
0.1000	2.0750	-0.1076	1.8284	-0.0731	2.1708	0.1276
0.1500	2.0750	-0.1076	1.8334	0.1707	2.1708	0.1276
0.1990	2.0750	-0.1076	1.8334	0.1707	2.1708	0.1276
0.2480	2.0750	-0.1076	1.8383	0.4144	2.1758	0.3730
0.3010	2.0750	-0.1076	1.8284	-0.0731	2.1658	-0.1177
0.3500	2.0750	-0.1076	1.8334	0.1707	2.1658	-0.1177
0.4000	2.0750	-0.1076	1.8334	0.1707	2.1708	0.1276
0.4490	2.0800	0.1370	1.8334	0.1707	2.1708	0.1276
0.5000	2.0700	-0.3523	1.8334	0.1707	2.1658	-0.1177
0.5540	2.0700	-0.3523	1.8284	-0.0731	2.1708	0.1276
0.6040	2.0800	0.1370	1.8284	-0.0731	2.1708	0.1276
0.6530	2.0700	-0.3523	1.8284	-0.0731	2.1708	0.1276
0.7040	2.0750	-0.1076	1.8284	-0.0731	2.1708	0.1276
0.7580	2.0800	0.1370	1.8334	0.1707	2.1708	0.1276
0.8080	2.0550	-1.0863	1.8085	-1.0480	2.1708	0.1276
0.8560	2.0201	-2.7990	1.7836	-2.2666	2.1708	0.1276
0.9060	2.0251	-2.5544	1.7687	-2.9978	2.1808	0.6183
0.9560	2.0151	-3.0437	1.7786	-2.5103	2.1658	-0.1177
1.0100	2.0550	-1.0863	1.7985	-1.5354	2.1307	-1.8352
1.0580	2.0550	-1.0863	1.8135	-0.8042	2.1708	0.1276
1.1070	2.0700	-0.3523	1.8334	0.1707	2.1557	-0.6084
1.1590	2.0800	0.1370	1.8234	-0.3168	2.1307	-1.8352
1.2120	2.1049	1.3604	1.8582	1.3893	2.1858	0.8637
1.2600	2.0950	0.8710	1.8533	1.1456	2.1808	0.6183
1.3080	2.1149	1.8497	1.8433	0.6581	2.1608	-0.3631
1.3570	2.1299	2.5838	1.8682	1.8768	2.1858	0.8637
1.4030	2.1249	2.3391	1.8632	1.6331	2.1758	0.3730
1.4530	2.1049	1.3604	1.8483	0.9019	2.1758	0.3730
1.5060	2.0900	0.6264	1.8383	0.4144	2.1557	-0.6084
1.5540	2.1000	1.1157	1.8433	0.6581	2.1708	0.1276
1.6030	2.1000	1.1157	1.8533	1.1456	2.1608	-0.3631
1.6510	2.0850	0.3817	1.8334	0.1707	2.1658	-0.1177
1.7000	2.1049	1.3604	1.8582	1.3893	2.1708	0.1276
1.7500	2.0750	-0.1076	1.8284	-0.0731	2.1708	0.1276
1.8050	2.0750	-0.1076	1.8284	-0.0731	2.1708	0.1276
1.8540	2.0750	-0.1076	1.8284	-0.0731	2.1658	-0.1177
1.9040	2.0650	-0.5970	1.8284	-0.0731	2.1708	0.1276
1.9540	2.0750	-0.1076	1.8284	-0.0731	2.1658	-0.1177
2.0080	2.0800	0.1370	1.8334	0.1707	2.1708	0.1276
2.0570	2.0850	0.3817	1.8334	0.1707	2.1608	-0.3631
2.1060	2.0800	0.1370	1.8284	-0.0731	2.1708	0.1276
2.1570	2.0750	-0.1076	1.8334	0.1707	2.1658	-0.1177

Pos X-Pos Y (4)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0800	0.1664	1.8284	-0.1413	2.1708	0.1080
0.0460	2.0850	0.4111	1.8334	0.1024	2.1708	0.1080
0.0950	2.0700	-0.3229	1.8383	0.3462	2.1658	-0.1374
0.1460	2.0700	-0.3229	1.8334	0.1024	2.1658	-0.1374
0.2000	2.0800	0.1664	1.8334	0.1024	2.1658	-0.1374
0.2490	2.0700	-0.3229	1.8334	0.1024	2.1708	0.1080
0.2990	2.0750	-0.0782	1.8284	-0.1413	2.1708	0.1080
0.3500	2.0850	0.4111	1.8383	0.3462	2.1708	0.1080
0.4040	2.0750	-0.0782	1.8284	-0.1413	2.1708	0.1080
0.4530	2.0750	-0.0782	1.8284	-0.1413	2.1708	0.1080
0.5040	2.0750	-0.0782	1.8334	0.1024	2.1708	0.1080
0.5580	2.0500	-1.3016	1.8085	-1.1162	2.1658	-0.1374
0.6060	1.9951	-3.9930	1.7587	-3.5535	2.1658	-0.1374
0.6530	1.9951	-3.9930	1.7587	-3.5535	2.1808	0.5987
0.7020	1.9951	-3.9930	1.7687	-3.0661	2.1608	-0.3827
0.7510	2.0350	-2.0356	1.7936	-1.8474	2.1658	-0.1374
0.7990	2.0600	-0.8123	1.8234	-0.3850	2.1608	-0.3827
0.8520	2.0750	-0.0782	1.8284	-0.1413	2.1708	0.1080
0.9050	2.1000	1.1451	1.8383	0.3462	2.1958	1.3348
0.9540	2.1199	2.1238	1.8632	1.5648	2.1658	-0.1374
1.0020	2.1449	3.3472	1.8781	2.2960	2.1858	0.8440
1.0520	2.1299	2.6131	1.8731	2.0523	2.1858	0.8440
1.1040	2.1199	2.1238	1.8731	2.0523	2.1758	0.3533
1.1520	2.1149	1.8791	1.8582	1.3211	2.1808	0.5987
1.2000	2.1000	1.1451	1.8632	1.5648	2.1658	-0.1374
1.2480	2.1199	2.1238	1.8533	1.0773	2.1708	0.1080
1.2970	2.0700	-0.3229	1.8284	-0.1413	2.1708	0.1080
1.3460	2.0800	0.1664	1.8383	0.3462	2.1658	-0.1374
1.3990	2.0750	-0.0782	1.8234	-0.3850	2.1708	0.1080
1.4530	2.0750	-0.0782	1.8334	0.1024	2.1708	0.1080
1.5020	2.0800	0.1664	1.8334	0.1024	2.1708	0.1080
1.5520	2.0800	0.1664	1.8284	-0.1413	2.1708	0.1080
1.6060	2.0800	0.1664	1.8334	0.1024	2.1658	-0.1374
1.6550	2.0800	0.1664	1.8284	-0.1413	2.1658	-0.1374

Pos X-Pos Y (5)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0800	0.1761	1.8284	-0.0950	2.1708	0.0859
0.0470	2.0750	-0.0685	1.8284	-0.0950	2.1658	-0.1594
0.0940	2.0750	-0.0685	1.8284	-0.0950	2.1708	0.0859
0.1480	2.0800	0.1761	1.8334	0.1487	2.1658	-0.1594
0.1970	2.0750	-0.0685	1.8284	-0.0950	2.1658	-0.1594
0.2470	2.0750	-0.0685	1.8284	-0.0950	2.1708	0.0859
0.3010	2.0850	0.4208	1.8383	0.3925	2.1658	-0.1594
0.3500	2.0750	-0.0685	1.8284	-0.0950	2.1708	0.0859
0.3990	2.0800	0.1761	1.8284	-0.0950	2.1658	-0.1594
0.4480	2.0800	0.1761	1.8284	-0.0950	2.1658	-0.1594
0.5000	2.0700	-0.3132	1.8334	0.1487	2.1708	0.0859
0.5550	2.0400	-1.7812	1.8035	-1.3136	2.1658	-0.1594
0.6040	2.0051	-3.4939	1.7737	-2.7760	2.1658	-0.1594
0.6510	2.0251	-2.5153	1.7737	-2.7760	2.1758	0.3313
0.7000	2.0151	-3.0046	1.7886	-2.0448	2.1758	0.3313
0.7550	2.0600	-0.8026	1.7936	-1.8011	2.1808	0.5766
0.8030	2.0400	-1.7812	1.8234	-0.3387	2.1658	-0.1594
0.8520	2.0750	-0.0685	1.8184	-0.5825	2.1708	0.0859
0.9000	2.0900	0.6655	1.7985	-1.5574	2.1407	-1.3862
0.9480	2.0950	0.9101	1.8483	0.8799	2.1708	0.0859
0.9970	2.1000	1.1548	1.8582	1.3674	2.1507	-0.8955
1.0480	2.0900	0.6655	1.8682	1.8548	2.1658	-0.1594
1.1020	2.1449	3.3569	1.8831	2.5860	2.1608	-0.4048
1.1490	2.1199	2.1335	1.8632	1.6111	2.1608	-0.4048
1.1980	2.1049	1.3995	1.8582	1.3674	2.1557	-0.6501
1.2460	2.0900	0.6655	1.8483	0.8799	2.1658	-0.1594
1.2970	2.0950	0.9101	1.8433	0.6362	2.1658	-0.1594
1.3500	2.0900	0.6655	1.8433	0.6362	2.1708	0.0859
1.3980	2.1000	1.1548	1.8483	0.8799	2.1758	0.3313
1.4470	2.0750	-0.0685	1.8284	-0.0950	2.1658	-0.1594
1.4960	2.0800	0.1761	1.8334	0.1487	2.1708	0.0859
1.5480	2.0750	-0.0685	1.8284	-0.0950	2.1658	-0.1594
1.6030	2.0750	-0.0685	1.8284	-0.0950	2.1708	0.0859
1.6510	2.0750	-0.0685	1.8234	-0.3387	2.1658	-0.1594
1.7010	2.0700	-0.3132	1.8284	-0.0950	2.1758	0.3313
1.7610	2.0800	0.1761	1.8334	0.1487	2.1708	0.0859

Neg X- Pos Y (1)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0700	-0.2471	1.8284	-0.1291	2.1658	-0.1079
0.0500	2.0800	0.2422	1.8234	-0.3728	2.1658	-0.1079
0.0990	2.0800	0.2422	1.8284	-0.1291	2.1658	-0.1079
0.1470	2.0750	-0.0024	1.8383	0.3583	2.1708	0.1374
0.1990	2.0800	0.2422	1.8334	0.1146	2.1708	0.1374
0.2530	2.0750	-0.0024	1.8284	-0.1291	2.1658	-0.1079
0.3040	2.0800	0.2422	1.8284	-0.1291	2.1708	0.1374
0.3530	2.0750	-0.0024	1.8334	0.1146	2.1658	-0.1079
0.4080	2.0700	-0.2471	1.8234	-0.3728	2.1658	-0.1079
0.4580	2.0750	-0.0024	1.8234	-0.3728	2.1658	-0.1079
0.5080	2.0750	-0.0024	1.8334	0.1146	2.1658	-0.1079
0.5610	2.0750	-0.0024	1.8334	0.1146	2.1708	0.1374
0.6160	2.0750	-0.0024	1.8334	0.1146	2.1758	0.3828
0.6680	2.0750	-0.0024	1.8284	-0.1291	2.1608	-0.3533
0.7240	2.0950	0.9762	1.7985	-1.5915	2.1658	-0.1079
0.7730	2.1399	3.1783	1.7488	-4.0288	2.1658	-0.1079
0.8220	2.1249	2.4443	1.7388	-4.5162	2.1557	-0.5986
0.8720	2.1199	2.1996	1.7637	-3.2976	2.1708	0.1374
0.9260	2.0950	0.9762	1.7936	-1.8352	2.1608	-0.3533
0.9740	2.0650	-0.4918	1.8035	-1.3478	2.1608	-0.3533
1.0210	2.0650	-0.4918	1.8284	-0.1291	2.1708	0.1374
1.0700	2.0850	0.4869	1.8632	1.5770	2.1557	-0.5986
1.1200	2.0600	-0.7365	1.8433	0.6021	2.1808	0.6281
1.1710	2.0500	-1.2258	1.8582	1.3333	2.1708	0.1374
1.2250	2.0450	-1.4705	1.8781	2.3082	2.1658	-0.1079
1.2730	2.0500	-1.2258	1.8682	1.8207	2.1808	0.6281
1.3210	2.0400	-1.7151	1.8582	1.3333	2.1507	-0.8440
1.3710	2.0450	-1.4705	1.8682	1.8207	2.1507	-0.8440
1.4250	2.0600	-0.7365	1.8582	1.3333	2.1758	0.3828
1.4730	2.0650	-0.4918	1.8433	0.6021	2.1708	0.1374
1.5210	2.0700	-0.2471	1.8334	0.1146	2.1708	0.1374
1.5710	2.0700	-0.2471	1.8284	-0.1291	2.1708	0.1374
1.6230	2.0650	-0.4918	1.8284	-0.1291	2.1708	0.1374
1.6780	2.0600	-0.7365	1.8433	0.6021	2.1708	0.1374
1.7250	2.0700	-0.2471	1.8334	0.1146	2.1658	-0.1079
1.7880	2.0700	-0.2471	1.8284	-0.1291	2.1658	-0.1079
1.8380	2.0700	-0.2471	1.8334	0.1146	2.1658	-0.1079
1.8900	2.0650	-0.4918	1.8284	-0.1291	2.1608	-0.3533
1.9390	2.0750	-0.0024	1.8284	-0.1291	2.1658	-0.1079
1.9900	2.0750	-0.0024	1.8334	0.1146	2.1658	-0.1079
2.0400	2.0650	-0.4918	1.8234	-0.3728	2.1658	-0.1079
2.0910	2.0700	-0.2471	1.8234	-0.3728	2.1608	-0.3533
2.1440	2.0650	-0.4918	1.8284	-0.1291	2.1658	-0.1079

Neg X- Pos Y (2)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0750	-0.0465	1.8334	0.2340	2.1708	0.1154
0.0460	2.0800	0.1982	1.8284	-0.0097	2.1658	-0.1300
0.0930	2.0800	0.1982	1.8284	-0.0097	2.1658	-0.1300
0.1480	2.0750	-0.0465	1.8234	-0.2534	2.1658	-0.1300
0.1970	2.0800	0.1982	1.8284	-0.0097	2.1658	-0.1300
0.2470	2.0700	-0.2912	1.8284	-0.0097	2.1658	-0.1300
0.3000	2.0800	0.1982	1.8234	-0.2534	2.1608	-0.3753
0.3500	2.1049	1.4216	1.7886	-1.9595	2.1658	-0.1300
0.3980	2.1399	3.1343	1.7587	-3.4219	2.1808	0.6061
0.4470	2.1349	2.8896	1.7737	-2.6907	2.1758	0.3607
0.4960	2.1199	2.1556	1.7886	-1.9595	2.1608	-0.3753
0.5470	2.1099	1.6662	1.7985	-1.4721	2.1658	-0.1300
0.6000	2.0850	0.4429	1.8035	-1.2283	2.1557	-0.6207
0.6480	2.0750	-0.0465	1.8334	0.2340	2.1557	-0.6207
0.6970	2.1000	1.1769	1.8533	1.2090	2.1758	0.3607
0.7460	2.0500	-1.2698	1.8284	-0.0097	2.1758	0.3607
0.7960	2.0450	-1.5145	1.8234	-0.2534	2.1658	-0.1300
0.8500	2.0700	-0.2912	1.8582	1.4527	2.1708	0.1154
0.8990	2.0600	-0.7805	1.8682	1.9401	2.1708	0.1154
0.9470	2.0400	-1.7592	1.8731	2.1839	2.1808	0.6061
0.9950	2.0450	-1.5145	1.8731	2.1839	2.1708	0.1154
1.0450	2.0450	-1.5145	1.8781	2.4276	2.1758	0.3607
1.0950	2.0550	-1.0252	1.8483	0.9652	2.1658	-0.1300
1.1490	2.0800	0.1982	1.8284	-0.0097	2.1708	0.1154
1.1990	2.0850	0.4429	1.8184	-0.4971	2.1708	0.1154
1.2500	2.0750	-0.0465	1.8284	-0.0097	2.1658	-0.1300
1.3030	2.0800	0.1982	1.8284	-0.0097	2.1708	0.1154
1.3540	2.0800	0.1982	1.8334	0.2340	2.1708	0.1154
1.4040	2.0800	0.1982	1.8284	-0.0097	2.1658	-0.1300
1.4580	2.0750	-0.0465	1.8234	-0.2534	2.1658	-0.1300
1.5060	2.0750	-0.0465	1.8334	0.2340	2.1708	0.1154

Neg X- Pos Y (3)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0700	-0.2667	1.8184	-0.5483	2.1658	-0.0736
0.0530	2.0750	-0.0221	1.8284	-0.0609	2.1658	-0.0736
0.1030	2.0700	-0.2667	1.8334	0.1829	2.1658	-0.0736
0.1520	2.0800	0.2226	1.8334	0.1829	2.1658	-0.0736
0.2030	2.0750	-0.0221	1.8284	-0.0609	2.1658	-0.0736
0.2580	2.0750	-0.0221	1.8234	-0.3046	2.1658	-0.0736
0.3080	2.0700	-0.2667	1.8234	-0.3046	2.1658	-0.0736
0.3590	2.0850	0.4673	1.8284	-0.0609	2.1658	-0.0736
0.4130	2.1049	1.4460	1.7985	-1.5232	2.1658	-0.0736
0.4610	2.1149	1.9353	1.7637	-3.2293	2.1608	-0.3189
0.5110	2.1099	1.6906	1.7936	-1.7670	2.1557	-0.5643
0.5600	2.1099	1.6906	1.7985	-1.5232	2.1758	0.4171
0.6130	2.1000	1.2013	1.8085	-1.0358	2.1708	0.1718
0.6640	2.0850	0.4673	1.8135	-0.7920	2.1808	0.6625
0.7130	2.0900	0.7120	1.8085	-1.0358	2.1658	-0.0736
0.7610	2.0850	0.4673	1.8234	-0.3046	2.1708	0.1718
0.8140	2.1000	1.2013	1.8334	0.1829	2.1608	-0.3189
0.8680	2.0750	-0.0221	1.8284	-0.0609	2.1658	-0.0736
0.9170	2.0600	-0.7561	1.8234	-0.3046	2.1658	-0.0736
0.9670	2.0700	-0.2667	1.8632	1.6452	2.1708	0.1718
1.0210	2.0550	-1.0007	1.8483	1.4015	2.1708	0.1718
1.0690	2.0500	-1.2454	1.8533	1.1578	2.1658	-0.0736
1.1170	2.0550	-1.0007	1.8632	1.6452	2.1808	0.6625
1.1650	2.0550	-1.0007	1.8533	1.1578	2.1708	0.1718
1.2130	2.0500	-1.2454	1.8533	1.1578	2.1658	-0.0736
1.2620	2.0700	-0.2667	1.8433	0.6703	2.1557	-0.5643
1.3140	2.0750	-0.0221	1.8284	-0.0609	2.1658	-0.0736
1.3660	2.0650	-0.5114	1.8433	0.6703	2.1658	-0.0736
1.4140	2.0550	-1.0007	1.8483	0.9141	2.1608	-0.3189
1.4620	2.0800	0.2226	1.8234	-0.3046	2.1608	-0.3189
1.5120	2.0700	-0.2667	1.8334	0.1829	2.1658	-0.0736
1.5650	2.0700	-0.2667	1.8234	-0.3046	2.1658	-0.0736
1.6150	2.0800	0.2226	1.8334	0.1829	2.1658	-0.0736
1.6630	2.0750	-0.0221	1.8334	0.1829	2.1658	-0.0736
1.7130	2.0750	-0.0221	1.8284	-0.0609	2.1658	-0.0736
1.7660	2.0700	-0.2667	1.8284	-0.0609	2.1658	-0.0736
1.8200	2.0750	-0.0221	1.8334	0.1829	2.1658	-0.0736

Neg X- Pos Y (4)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0750	0.0244	1.8284	-0.1169	2.1658	-0.1889
0.0500	2.0800	0.2691	1.8334	0.1268	2.1658	-0.1889
0.1040	2.0750	0.0244	1.8284	-0.1169	2.1658	-0.1889
0.1560	2.0750	0.0244	1.8284	-0.1169	2.1658	-0.1889
0.2120	2.0800	0.2691	1.8334	0.1268	2.1708	0.0565
0.2600	2.0750	0.0244	1.8284	-0.1169	2.1708	0.0565
0.3130	2.0750	0.0244	1.8284	-0.1169	2.1708	0.0565
0.3680	2.0750	0.0244	1.8284	-0.1169	2.1658	-0.1889
0.4170	2.0750	0.0244	1.8184	-0.6044	2.1708	0.0565
0.4680	2.0900	0.7584	1.7985	-1.5793	2.1658	-0.1889
0.5220	2.1249	2.4711	1.7687	-3.0417	2.1557	-0.6795
0.5700	2.1149	1.9818	1.7687	-3.0417	2.1708	0.0565
0.6180	2.1249	2.4711	1.7737	-2.7979	2.1608	-0.4342
0.6670	2.1199	2.2265	1.7786	-2.5542	2.1808	0.5472
0.7150	2.0900	0.7584	1.8035	-1.3356	2.1758	0.3019
0.7640	2.0950	1.0031	1.8284	-0.1169	2.1858	0.7925
0.8180	2.0750	0.0244	1.8284	-0.1169	2.1557	-0.6795
0.8690	2.0450	-1.4436	1.8334	0.1268	2.1858	0.7925
0.9170	2.0500	-1.1990	1.8483	0.8580	2.1758	0.3019
0.9660	2.0700	-0.2203	1.8781	2.3204	2.1507	-0.9249
1.0150	2.0350	-1.9330	1.8682	1.8329	2.1608	-0.4342
1.0690	2.0251	-2.4223	1.8881	2.8078	2.1658	-0.1889
1.1170	2.0500	-1.1990	1.8682	1.8329	2.1708	0.0565
1.1660	2.0600	-0.7096	1.8533	1.1017	2.1658	-0.1889
1.2140	2.0600	-0.7096	1.8433	0.6143	2.1608	-0.4342
1.2620	2.0600	-0.7096	1.8433	0.6143	2.1708	0.0565
1.3130	2.0700	-0.2203	1.8383	0.3705	2.1758	0.3019
1.3680	2.0450	-1.4436	1.8682	1.8329	2.1608	-0.4342
1.4160	2.0850	0.5138	1.8135	-0.8481	2.1708	0.0565
1.4650	2.0700	-0.2203	1.8334	0.1268	2.1658	-0.1889
1.5160	2.0750	0.0244	1.8284	-0.1169	2.1658	-0.1889
1.5710	2.0800	0.2691	1.8334	0.1268	2.1708	0.0565
1.6200	2.0800	0.2691	1.8383	0.3705	2.1708	0.0565
1.6700	2.0750	0.0244	1.8334	0.1268	2.1758	0.3019
1.7220	2.0700	-0.2203	1.8234	-0.3607	2.1658	-0.1889

Neg X- Pos Y (5)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0750	-0.0661	1.8284	-0.0755	2.1708	0.1620
0.0420	2.0800	0.1786	1.8334	0.1682	2.1708	0.1620
0.0880	2.0800	0.1786	1.8284	-0.0755	2.1608	-0.3287
0.1340	2.0750	-0.0661	1.8284	-0.0755	2.1708	0.1620
0.1810	2.0800	0.1786	1.8334	0.1682	2.1658	-0.0834
0.2270	2.0900	0.6679	1.8234	-0.3192	2.1658	-0.0834
0.2730	2.0950	0.9126	1.8035	-1.2941	2.1608	-0.3287
0.3190	2.1099	1.6466	1.7936	-1.7816	2.1608	-0.3287
0.3650	2.1149	1.8913	1.7886	-2.0253	2.1758	0.4073
0.4110	2.1149	1.8913	1.7836	-2.2691	2.1507	-0.8194
0.4560	2.0900	0.6679	1.7836	-2.2691	2.1658	-0.0834
0.5060	2.1049	1.4019	1.8085	-1.0504	2.1608	-0.3287
0.5590	2.0950	0.9126	1.8035	-1.2941	2.1858	0.8980
0.6060	2.0800	0.1786	1.8135	-0.8067	2.1708	0.1620
0.6590	2.0800	0.1786	1.8383	0.4120	2.1808	0.6527
0.7130	2.0650	-0.5555	1.8383	0.4120	2.1708	0.1620
0.7620	2.0650	-0.5555	1.8433	0.6557	2.1758	0.4073
0.8120	2.0650	-0.5555	1.8483	0.8994	2.1608	-0.3287
0.8650	2.0350	-2.0235	1.8582	1.3869	2.1658	-0.0834
0.9140	2.0550	-1.0448	1.8632	1.6306	2.1608	-0.3287
0.9620	2.0500	-1.2895	1.8632	1.6306	2.1608	-0.3287
1.0110	2.0550	-1.0448	1.8731	2.1181	2.1708	0.1620
1.0590	2.0500	-1.2895	1.8682	1.8743	2.1758	0.4073
1.1090	2.0600	-0.8001	1.8533	1.1431	2.1658	-0.0834
1.1620	2.0700	-0.3108	1.8433	0.6557	2.1608	-0.3287
1.2140	2.0400	-1.7788	1.8533	1.1431	2.1608	-0.3287
1.2620	2.0800	0.1786	1.8184	-0.5630	2.1708	0.1620
1.3130	2.0750	-0.0661	1.8433	0.6557	2.1608	-0.3287
1.3670	2.0800	0.1786	1.8334	0.1682	2.1658	-0.0834
1.4160	2.0700	-0.3108	1.8234	-0.3192	2.1658	-0.0834
1.4650	2.0750	-0.0661	1.8284	-0.0755	2.1708	0.1620
1.5160	2.0800	0.1786	1.8284	-0.0755	2.1658	-0.0834
1.5690	2.0700	-0.3108	1.8284	-0.0755	2.1658	-0.0834

Neg X- Neg Y (1)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0010	2.0750	-0.1296	1.8234	-0.1486	2.1658	-0.1545
0.0510	2.0800	0.1151	1.8284	0.0951	2.1708	0.0908
0.1000	2.0800	0.1151	1.8284	0.0951	2.1708	0.0908
0.1490	2.0750	-0.1296	1.8284	0.0951	2.1708	0.0908
0.2010	2.0750	-0.1296	1.8234	-0.1486	2.1658	-0.1545
0.2560	2.0750	-0.1296	1.8284	0.0951	2.1708	0.0908
0.3050	2.0750	-0.1296	1.8284	0.0951	2.1658	-0.1545
0.3560	2.0750	-0.1296	1.8234	-0.1486	2.1658	-0.1545
0.4100	2.0750	-0.1296	1.8284	0.0951	2.1658	-0.1545
0.4600	2.0800	0.1151	1.8284	0.0951	2.1758	0.3362
0.5110	2.0850	0.3598	1.8284	0.0951	2.1708	0.0908
0.5640	2.0800	0.1151	1.8284	0.0951	2.1708	0.0908
0.6140	2.0800	0.1151	1.8284	0.0951	2.1708	0.0908
0.6630	2.0950	0.8491	1.8433	0.8263	2.1708	0.0908
0.7120	2.1199	2.0725	1.8682	2.0450	2.1658	-0.1545
0.7730	2.1249	2.3172	1.8831	2.7761	2.1658	-0.1545
0.8220	2.1299	2.5618	1.8781	2.5324	2.1858	0.8269
0.8740	2.1349	2.8065	1.8582	1.5575	2.1708	0.0908
0.9280	2.1049	1.3385	1.8383	0.5826	2.1608	-0.3999
0.9760	2.0700	-0.3742	1.8483	1.0700	2.1557	-0.6452
1.0240	2.0850	0.3598	1.8284	0.0951	2.1708	0.0908
1.0760	2.0600	-0.8636	1.8135	-0.6361	2.1808	0.5815
1.1290	2.0400	-1.8423	1.8085	-0.8798	2.1858	0.8269
1.1770	2.0550	-1.1082	1.7985	-1.3673	2.1708	0.0908
1.2260	2.0450	-1.5976	1.7936	-1.6110	2.1658	-0.1545
1.2730	2.0450	-1.5976	1.7985	-1.3673	2.1708	0.0908
1.3230	2.0500	-1.3529	1.7985	-1.3673	2.1608	-0.3999
1.3760	2.0550	-1.1082	1.8085	-0.8798	2.1658	-0.1545
1.4280	2.0550	-1.1082	1.8085	-0.8798	2.1608	-0.3999
1.4760	2.0650	-0.6189	1.8184	-0.3923	2.1658	-0.1545
1.5280	2.0700	-0.3742	1.8184	-0.3923	2.1658	-0.1545
1.5820	2.0800	0.1151	1.8234	-0.1486	2.1658	-0.1545
1.6310	2.0650	-0.6189	1.8184	-0.3923	2.1658	-0.1545
1.6800	2.0850	0.3598	1.8284	0.0951	2.1658	-0.1545
1.7310	2.0750	-0.1296	1.8284	0.0951	2.1658	-0.1545
1.7860	2.0800	0.1151	1.8284	0.0951	2.1658	-0.1545
1.8350	2.0850	0.3598	1.8284	0.0951	2.1708	0.0908
1.8850	2.0750	-0.1296	1.8284	0.0951	2.1708	0.0908
1.9370	2.0800	0.1151	1.8284	0.0951	2.1658	-0.1545
1.9860	2.0750	-0.1296	1.8284	0.0951	2.1708	0.0908
2.0350	2.0850	0.3598	1.8284	0.0951	2.1658	-0.1545
2.0840	2.0800	0.1151	1.8234	-0.1486	2.1658	-0.1545

Neg X- Neg Y (3)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0500	2.0700	-0.3205	1.8334	0.0269	2.1708	0.1423
0.0990	2.0800	0.1688	1.8284	-0.2169	2.1708	0.1423
0.1480	2.0750	-0.0758	1.8334	0.0269	2.1658	-0.1030
0.2000	2.0750	-0.0758	1.8284	-0.2169	2.1658	-0.1030
0.2540	2.0750	-0.0758	1.8334	0.0269	2.1758	0.3877
0.3040	2.0800	0.1688	1.8334	0.0269	2.1658	-0.1030
0.3560	2.0750	-0.0758	1.8334	0.0269	2.1658	-0.1030
0.4100	2.0800	0.1688	1.8334	0.0269	2.1708	0.1423
0.4600	2.0750	-0.0758	1.8383	0.2706	2.1708	0.1423
0.5130	2.0750	-0.0758	1.8234	-0.4606	2.1658	-0.1030
0.5670	2.0800	0.1688	1.8383	0.2706	2.1708	0.1423
0.6160	2.0700	-0.3205	1.8284	-0.2169	2.1708	0.1423
0.6670	2.0750	-0.0758	1.8334	0.0269	2.1708	0.1423
0.7210	2.0800	0.1688	1.8383	0.2706	2.1708	0.1423
0.7720	2.0750	-0.0758	1.8334	0.0269	2.1658	-0.1030
0.8230	2.0750	-0.0758	1.8334	0.0269	2.1758	0.3877
0.8770	2.1199	2.1262	1.8383	0.2706	2.1708	0.1423
0.9260	2.1199	2.1262	1.8831	2.4642	2.1758	0.3877
0.9750	2.1449	3.3496	1.8831	2.4642	2.1758	0.3877
1.0230	2.1349	2.8602	1.8632	1.4893	2.1808	0.6330
1.0720	2.1249	2.3709	1.8533	1.0018	2.1658	-0.1030
1.1220	2.0900	0.6582	1.8781	2.2204	2.1658	-0.1030
1.1750	2.0800	0.1688	1.8632	1.4893	2.1708	0.1423
1.2240	2.1049	1.3922	1.8184	-0.7043	2.1708	0.1423
1.2730	2.0750	-0.0758	1.8135	-0.9480	2.1708	0.1423
1.3240	2.0600	-0.8099	1.8284	-0.2169	2.1608	-0.3484
1.3770	2.0450	-1.5439	1.7836	-2.4104	2.1758	0.3877
1.4260	2.0450	-1.5439	1.7936	-1.9230	2.1608	-0.3484
1.4740	2.0251	-2.5226	1.7836	-2.4104	2.1557	-0.5937
1.5230	2.0300	-2.2779	1.7886	-2.1667	2.1658	-0.1030
1.5720	2.0550	-1.0545	1.8184	-0.7043	2.1758	0.3877
1.6220	2.0600	-0.8099	1.8184	-0.7043	2.1758	0.3877
1.6760	2.0750	-0.0758	1.8234	-0.4606	2.1708	0.1423
1.7250	2.0700	-0.3205	1.8135	-0.9480	2.1708	0.1423
1.7870	2.0600	-0.8099	1.8135	-0.9480	2.1708	0.1423
1.8350	2.0800	0.1688	1.8284	-0.2169	2.1658	-0.1030
1.8870	2.0750	-0.0758	1.8284	-0.2169	2.1658	-0.1030
1.9420	2.0800	0.1688	1.8334	0.0269	2.1708	0.1423
1.9910	2.0750	-0.0758	1.8334	0.0269	2.1708	0.1423
2.0420	2.0750	-0.0758	1.8334	0.0269	2.1658	-0.1030
2.0980	2.0800	0.1688	1.8284	-0.2169	2.1708	0.1423
2.1470	2.0800	0.1688	1.8334	0.0269	2.1708	0.1423
2.1970	2.0800	0.1688	1.8334	0.0269	2.1708	0.1423
2.2510	2.0750	-0.0758	1.8334	0.0269	2.1658	-0.1030

Neg X- Neg Y (2)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0750	-0.1028	1.8234	-0.1120	2.1608	-0.3386
0.0510	2.0750	-0.1028	1.8284	0.1317	2.1658	-0.0932
0.1000	2.0750	-0.1028	1.8234	-0.1120	2.1708	0.1521
0.1500	2.0800	0.1419	1.8184	-0.3558	2.1658	-0.0932
0.2000	2.0800	0.1419	1.8284	0.1317	2.1658	-0.0932
0.2550	2.0750	-0.1028	1.8234	-0.1120	2.1658	-0.0932
0.3040	2.0800	0.1419	1.8284	0.1317	2.1658	-0.0932
0.3540	2.0800	0.1419	1.8234	-0.1120	2.1708	0.1521
0.4060	2.0850	0.3866	1.8284	0.1317	2.1658	-0.0932
0.4590	2.0850	0.3866	1.8334	0.3754	2.1658	-0.0932
0.5090	2.1149	1.8546	1.8533	1.3503	2.1708	0.1521
0.5590	2.1449	3.3226	1.8831	2.8127	2.1557	-0.5839
0.6110	2.1299	2.5886	1.8831	2.8127	2.2008	1.6242
0.6630	2.1299	2.5886	1.8682	2.0815	2.1658	-0.0932
0.7120	2.0950	0.8759	1.8731	2.3253	2.1808	0.6428
0.7620	2.1049	1.3653	1.8383	0.6191	2.1758	0.3975
0.8160	2.1000	1.1206	1.8135	-0.5995	2.2008	1.6242
0.8640	2.1049	1.3653	1.8184	-0.3558	2.1357	-1.5653
0.9120	2.0251	-2.5495	1.8582	1.5941	2.1608	-0.3386
0.9600	2.0251	-2.5495	1.8184	-0.3558	2.1658	-0.0932
1.0090	2.0201	-2.7942	1.7836	-2.0619	2.1507	-0.8293
1.0590	2.0101	-3.2835	1.7737	-2.5493	2.1708	0.1521
1.1120	2.0350	-2.0601	1.7886	-1.8181	2.1658	-0.0932
1.1600	2.0500	-1.3261	1.7936	-1.5744	2.1658	-0.0932
1.2100	2.0750	-0.1028	1.8135	-0.5995	2.1658	-0.0932
1.2590	2.0850	0.3866	1.8184	-0.3558	2.1708	0.1521
1.3120	2.0400	-1.8155	1.7985	-1.3307	2.1708	0.1521
1.3650	2.0850	0.3866	1.8334	0.3754	2.1658	-0.0932
1.4140	2.0750	-0.1028	1.8234	-0.1120	2.1658	-0.0932
1.4640	2.0750	-0.1028	1.8284	0.1317	2.1708	0.1521
1.5170	2.0800	0.1419	1.8284	0.1317	2.1708	0.1521
1.5670	2.0750	-0.1028	1.8234	-0.1120	2.1658	-0.0932
1.6160	2.0750	-0.1028	1.8234	-0.1120	2.1658	-0.0932
1.6650	2.0800	0.1419	1.8284	0.1317	2.1658	-0.0932
1.7150	2.0750	-0.1028	1.8234	-0.1120	2.1658	-0.0932

Neg X- Neg Y (4)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0800	0.2226	1.8383	0.3632	2.1708	0.0933
0.0450	2.0800	0.2226	1.8383	0.3632	2.1658	-0.1521
0.0950	2.0750	-0.0220	1.8334	0.1195	2.1708	0.0933
0.1490	2.0850	0.4673	1.8334	0.1195	2.1658	-0.1521
0.1980	2.0750	-0.0220	1.8334	0.1195	2.1658	-0.1521
0.2480	2.0800	0.2226	1.8284	-0.1242	2.1658	-0.1521
0.3010	2.0750	-0.0220	1.8284	-0.1242	2.1708	0.0933
0.3510	2.0800	0.2226	1.8334	0.1195	2.1708	0.0933
0.4000	2.0750	-0.0220	1.8284	-0.1242	2.1658	-0.1521
0.4500	2.0750	-0.0220	1.8284	-0.1242	2.1708	0.0933
0.5030	2.0750	-0.0220	1.8334	0.1195	2.1658	-0.1521
0.5580	2.0750	-0.0220	1.8284	-0.1242	2.1708	0.0933
0.6070	2.0800	0.2226	1.8334	0.1195	2.1608	-0.3974
0.6590	2.0800	0.2226	1.8334	0.1195	2.1708	0.0933
0.7140	2.1099	1.6907	1.8533	1.0944	2.1758	0.3387
0.7620	2.1499	3.6481	1.8980	3.2880	2.1758	0.3387
0.8110	2.1549	3.8927	1.8930	3.0442	2.1608	-0.3974
0.8610	2.1249	2.4247	1.8731	2.0693	2.1758	0.3387
0.9140	2.0950	0.9567	1.8533	1.0944	2.1658	-0.1521
0.9620	2.0900	0.7120	1.8483	0.8507	2.1557	-0.6427
1.0110	2.0950	0.9567	1.8383	0.3632	2.1507	-0.8881
1.0590	2.0500	-1.2454	1.8533	1.0944	2.1758	0.3387
1.1060	2.0450	-1.4901	1.8234	-0.3680	2.1808	0.5840
1.1560	2.0300	-2.2241	1.7985	-1.5866	2.1858	0.8293
1.2080	2.0500	-1.2454	1.7936	-1.8303	2.1608	-0.3974
1.2600	2.0550	-1.0007	1.7936	-1.8303	2.1608	-0.3974
1.3090	2.0400	-1.7347	1.7985	-1.5866	2.1658	-0.1521
1.3560	2.0500	-1.2454	1.8085	-1.0991	2.1557	-0.6427
1.4050	2.0650	-0.5114	1.8135	-0.8554	2.1758	0.3387
1.4570	2.0600	-0.7560	1.8085	-1.0991	2.1708	0.0933
1.5100	2.0500	-1.2454	1.8234	-0.3680	2.1608	-0.3974
1.5590	2.0750	-0.0220	1.8284	-0.1242	2.1658	-0.1521
1.6090	2.0800	0.2226	1.8284	-0.1242	2.1608	-0.3974
1.6640	2.0800	0.2226	1.8334	0.1195	2.1658	-0.1521
1.7130	2.0700	-0.2667	1.8284	-0.1242	2.1658	-0.1521
1.7620	2.0750	-0.0220	1.8234	-0.3680	2.1658	-0.1521
1.8120	2.0800	0.2226	1.8334	0.1195	2.1658	-0.1521
1.8650	2.0750	-0.0220	1.8284	-0.1242	2.1708	0.0933
1.9130	2.0800	0.2226	1.8334	0.1195	2.1658	-0.1521

Neg X- Neg Y (5)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0750	-0.0954	1.8334	0.1560	2.1658	-0.1668
0.0520	2.0800	0.1493	1.8334	0.1560	2.1658	-0.1668
0.1020	2.0800	0.1493	1.8383	0.3998	2.1608	-0.4121
0.1530	2.0800	0.1493	1.8284	-0.0877	2.1708	0.0786
0.2070	2.0850	0.3939	1.8284	-0.0877	2.1708	0.0786
0.2560	2.0800	0.1493	1.8284	-0.0877	2.1758	0.3239
0.3050	2.0750	-0.0954	1.8284	-0.0877	2.1708	0.0786
0.3580	2.0800	0.1493	1.8284	-0.0877	2.1708	0.0786
0.4110	2.0800	0.1493	1.8284	-0.0877	2.1658	-0.1668
0.4610	2.0850	0.3939	1.8334	0.1560	2.1708	0.0786
0.5130	2.0750	-0.0954	1.8334	0.1560	2.1708	0.0786
0.5670	2.0800	0.1493	1.8284	-0.0877	2.1608	-0.4121
0.6160	2.0750	-0.0954	1.8284	-0.0877	2.1658	-0.1668
0.6650	2.0800	0.1493	1.8383	0.3998	2.1708	0.0786
0.7180	2.0800	0.1493	1.8383	0.3998	2.1658	-0.1668
0.7830	2.1049	1.3726	1.8483	0.8872	2.1658	-0.1668
0.8320	2.1349	2.8406	1.8831	2.5933	2.1608	-0.4121
0.8800	2.1499	3.5747	1.8930	3.0808	2.1608	-0.4121
0.9290	2.1249	2.3513	1.8930	3.0808	2.1758	0.3239
0.9780	2.1049	1.3726	1.8831	2.5933	2.1608	-0.4121
1.0280	2.0900	0.6386	1.8433	0.6435	2.1808	0.5693
1.0800	2.0950	0.8833	1.8483	0.8872	2.1507	-0.9028
1.1290	2.0500	-1.3188	1.8483	0.8872	2.1708	0.0786
1.1770	2.0600	-0.8294	1.8085	-1.0626	2.1858	0.8146
1.2250	2.0650	-0.5848	1.8035	-1.3063	2.1758	0.3239
1.2740	2.0450	-1.5634	1.8035	-1.3063	2.1708	0.0786
1.3240	2.0350	-2.0528	1.7985	-1.5501	2.1708	0.0786
1.3770	2.0300	-2.2975	1.7886	-2.0375	2.1708	0.0786
1.4260	2.0550	-1.0741	1.7985	-1.5501	2.1608	-0.4121
1.4750	2.0400	-1.8081	1.7985	-1.5501	2.1708	0.0786
1.5230	2.0600	-0.8294	1.8184	-0.5751	2.1708	0.0786
1.5720	2.0700	-0.3401	1.8284	-0.0877	2.1708	0.0786
1.6240	2.0750	-0.0954	1.8334	0.1560	2.1658	-0.1668
1.6780	2.0600	-0.8294	1.8135	-0.8189	2.1758	0.3239
1.7270	2.0800	0.1493	1.8383	0.3998	2.1658	-0.1668
1.7820	2.0850	0.3939	1.8334	0.1560	2.1608	-0.4121
1.8300	2.0750	-0.0954	1.8334	0.1560	2.1708	0.0786
1.8790	2.0750	-0.0954	1.8234	-0.3314	2.1658	-0.1668
1.9290	2.0750	-0.0954	1.8234	-0.3314	2.1658	-0.1668
1.9810	2.0750	-0.0954	1.8284	-0.0877	2.1708	0.0786
2.0340	2.0750	-0.0954	1.8284	-0.0877	2.1708	0.0786

Pos X- Neg Y (2)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0750	0.0342	1.8284	-0.1120	2.1708	0.1522
0.0450	2.0800	0.2788	1.8334	0.1317	2.1658	-0.0932
0.0940	2.0750	0.0342	1.8234	-0.3558	2.1658	-0.0932
0.1430	2.0700	-0.2105	1.8284	-0.1120	2.1708	0.1522
0.1930	2.0750	0.0342	1.8334	0.1317	2.1608	-0.3385
0.2430	2.0750	0.0342	1.8284	-0.1120	2.1658	-0.0932
0.2980	2.0750	0.0342	1.8284	-0.1120	2.1708	0.1522
0.3470	2.0700	-0.2105	1.8284	-0.1120	2.1658	-0.0932
0.3970	2.0750	0.0342	1.8334	0.1317	2.1658	-0.0932
0.4480	2.0450	-1.4339	1.8582	1.3503	2.1658	-0.0932
0.5030	2.0151	-2.9019	1.8781	2.3252	2.1658	-0.0932
0.5510	2.0251	-2.4126	1.8781	2.3252	2.1407	-1.3199
0.6000	2.0400	-1.6785	1.8582	1.3503	2.1808	0.6429
0.6500	2.0500	-1.1892	1.8533	1.1066	2.1808	0.6429
0.7030	2.0450	-1.4339	1.8383	0.3754	2.1608	-0.3385
0.7520	2.0600	-0.6999	1.8284	-0.1120	2.1658	-0.0932
0.8010	2.0850	0.5235	1.8533	1.1066	2.1608	-0.3385
0.8490	2.0900	0.7682	1.8433	0.6191	2.1758	0.3975
0.8990	2.0900	0.7682	1.8234	-0.3558	2.1708	0.1522
0.9520	2.0850	0.5235	1.8135	-0.8432	2.1457	-1.0746
1.0000	2.0950	1.0128	1.8184	-0.5995	2.1557	-0.5839
1.0480	2.0900	0.7682	1.8035	-1.3307	2.1708	0.1522
1.0970	2.1000	1.2575	1.8135	-0.8432	2.1557	-0.5839
1.1450	2.1000	1.2575	1.7936	-1.8181	2.1608	-0.3385
1.1940	2.1049	1.5022	1.7936	-1.8181	2.1758	0.3975
1.2430	2.0950	1.0128	1.8035	-1.3307	2.1708	0.1522
1.2970	2.0850	0.5235	1.8234	-0.3558	2.1758	0.3975
1.3460	2.0800	0.2788	1.8184	-0.5995	2.1557	-0.5839
1.3950	2.0850	0.5235	1.8234	-0.3558	2.1708	0.1522
1.4430	2.0800	0.2788	1.8334	0.1317	2.1758	0.3975
1.4950	2.0700	-0.2105	1.8234	-0.3558	2.1708	0.1522
1.5490	2.0900	0.7682	1.8234	-0.3558	2.1708	0.1522
1.5980	2.0950	1.0128	1.8135	-0.8432	2.1658	-0.0932
1.6460	2.0700	-0.2105	1.8383	0.3754	2.1658	-0.0932
1.6970	2.0700	-0.2105	1.8334	0.1317	2.1708	0.1522
1.7520	2.0750	0.0342	1.8334	0.1317	2.1658	-0.0932
1.8010	2.0750	0.0342	1.8234	-0.3558	2.1658	-0.0932
1.8520	2.0800	0.2788	1.8334	0.1317	2.1658	-0.0932
1.9050	2.0800	0.2788	1.8334	0.1317	2.1658	-0.0932
1.9540	2.0750	0.0342	1.8334	0.1317	2.1758	0.3975

Pos X- Neg Y (1)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0700	-0.2032	1.8334	0.1804	2.1608	-0.2895
0.0510	2.0750	0.0415	1.8334	0.1804	2.1658	-0.0442
0.1040	2.0750	0.0415	1.8284	-0.0633	2.1658	-0.0442
0.1530	2.0750	0.0415	1.8234	-0.3070	2.1658	-0.0442
0.2050	2.0700	-0.2032	1.8334	0.1804	2.1608	-0.2895
0.2600	2.0750	0.0415	1.8334	0.1804	2.1708	0.2012
0.3090	2.0800	0.2862	1.8284	-0.0633	2.1658	-0.0442
0.3600	2.0700	-0.2032	1.8234	-0.3070	2.1708	0.2012
0.4140	2.0650	-0.4478	1.8334	0.1804	2.1658	-0.0442
0.4630	2.0450	-1.4265	1.8731	2.1303	2.1608	-0.2895
0.5120	2.0350	-1.9159	1.8831	2.6177	2.1758	0.4466
0.5610	2.0051	-3.3839	1.8980	3.3489	2.1457	-1.0256
0.6130	2.0101	-3.1392	1.8781	2.3740	2.1658	-0.0442
0.6660	2.0400	-1.6712	1.8334	0.1804	2.2008	1.6733
0.7140	2.0400	-1.6712	1.8483	0.9116	2.1858	0.9372
0.7630	2.0750	0.0415	1.8632	1.6428	2.1507	-0.7802
0.8110	2.0650	-0.4478	1.8334	0.1804	2.1908	1.1826
0.8640	2.0600	-0.6925	1.8135	-0.7945	2.1557	-0.5348
0.9160	2.0700	-0.2032	1.7637	-3.2318	2.1858	0.9372
0.9650	2.1249	2.4882	1.7637	-3.2318	2.1658	-0.0442
1.0140	2.1349	2.9776	1.7637	-3.2318	2.1658	-0.0442
1.0640	2.1199	2.2436	1.7786	-2.5006	2.1708	0.2012
1.1180	2.1049	1.5095	1.8035	-1.2819	2.1758	0.4466
1.1650	2.0850	0.5309	1.8085	-1.0382	2.1608	-0.2895
1.2140	2.0850	0.5309	1.8284	-0.0633	2.1758	0.4466
1.2630	2.0850	0.5309	1.8085	-1.0382	2.1658	-0.0442
1.3140	2.0700	-0.2032	1.8334	0.1804	2.1708	0.2012
1.3680	2.0650	-0.4478	1.8284	-0.0633	2.1708	0.2012
1.4170	2.0750	0.0415	1.8334	0.1804	2.1658	-0.0442
1.4660	2.0700	-0.2032	1.8334	0.1804	2.1658	-0.0442
1.5200	2.0800	0.2862	1.8334	0.1804	2.1708	0.2012
1.5750	2.0700	-0.2032	1.8284	-0.0633	2.1708	0.2012
1.6210	2.0750	0.0415	1.8334	0.1804	2.1658	-0.0442
1.6710	2.0700	-0.2032	1.8334	0.1804	2.1658	-0.0442

Pos X- Neg Y (3)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0800	0.2642	1.8334	0.1122	2.1608	-0.3165
0.0450	2.0700	-0.2251	1.8334	0.1122	2.1708	0.1742
0.0940	2.0750	0.0196	1.8334	0.1122	2.1758	0.4196
0.1410	2.0750	0.0196	1.8334	0.1122	2.1708	0.1742
0.1880	2.0750	0.0196	1.8383	0.3559	2.1708	0.1742
0.2350	2.0750	0.0196	1.8334	0.1122	2.1708	0.1742
0.2830	2.0750	0.0196	1.8284	-0.1315	2.1658	-0.0711
0.3320	2.0650	-0.4698	1.8483	0.8434	2.1658	-0.0711
0.3780	2.0500	-1.2038	1.8483	0.8434	2.1658	-0.0711
0.4240	2.0400	-1.6931	1.8582	1.3308	2.1708	0.1742
0.4700	2.0300	-2.1825	1.8731	2.0620	2.1658	-0.0711
0.5160	2.0350	-1.9378	1.8781	2.3057	2.1457	-1.0525
0.5650	2.0600	-0.7145	1.8632	1.5746	2.1608	-0.3165
0.6140	2.0450	-1.4485	1.8483	0.8434	2.1658	-0.0711
0.6610	2.0550	-0.9591	1.8533	1.0871	2.1708	0.1742
0.7100	2.0600	-0.7145	1.8433	0.5996	2.1808	0.6649
0.7580	2.0750	0.0196	1.8284	-0.1315	2.1758	0.4196
0.8090	2.0800	0.2642	1.8234	-0.3753	2.1658	-0.0711
0.8640	2.0800	0.2642	1.8135	-0.8627	2.1908	1.1556
0.9110	2.0950	0.9982	1.8284	-0.1315	2.1708	0.1742
0.9600	2.0750	0.0196	1.8135	-0.8627	2.1557	-0.5618
1.0100	2.1049	1.4876	1.8035	-1.3502	2.1658	-0.0711
1.0600	2.1149	1.9769	1.7985	-1.5939	2.1708	0.1742
1.1140	2.1199	2.2216	1.7786	-2.0814	2.1708	0.1742
1.1610	2.1049	1.4876	1.7985	-1.5939	2.1708	0.1742
1.2100	2.0950	0.9982	1.8035	-1.3502	2.1658	-0.0711
1.2580	2.1299	2.7109	1.7836	-2.3251	2.1708	0.1742
1.3090	2.0650	-0.4698	1.8483	0.8434	2.1708	0.1742
1.3630	2.0800	0.2642	1.8284	-0.1315	2.1658	-0.0711
1.4120	2.0700	-0.2251	1.8284	-0.1315	2.1658	-0.0711
1.4610	2.0800	0.2642	1.8284	-0.1315	2.1658	-0.0711
1.5110	2.0750	0.0196	1.8383	0.3559	2.1658	-0.0711
1.5640	2.0800	0.2642	1.8284	-0.1315	2.1708	0.1742

Pos X- Neg Y (4)								Pos X- Neg Y (5)					
Time	X-axis		Y-axis		Z-axis			Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2		Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0750	-0.0636	1.8334	0.1585	2.1658	-0.1325		0.0000	2.0750	0.0122	1.8334	0.1219	2.1658	-0.0638
0.0510	2.0700	-0.3083	1.8284	-0.0852	2.1708	0.1129		0.0530	2.0750	0.0122	1.8334	0.1219	2.1658	-0.0638
0.1000	2.0800	0.1811	1.8334	0.1585	2.1658	-0.1325		0.1030	2.0750	0.0122	1.8284	-0.1218	2.1658	-0.0638
0.1500	2.0800	0.1811	1.8334	0.1585	2.1658	-0.1325		0.1530	2.0800	0.2568	1.8334	0.1219	2.1708	0.1816
0.2040	2.0700	-0.3083	1.8334	0.1585	2.1708	0.1129		0.2040	2.0750	0.0122	1.8284	-0.1218	2.1658	-0.0638
0.2530	2.0750	-0.0636	1.8284	-0.0852	2.1708	0.1129		0.2590	2.0750	0.0122	1.8334	0.1219	2.1658	-0.0638
0.3030	2.0750	-0.0636	1.8284	-0.0852	2.1708	0.1129		0.3090	2.0800	0.2568	1.8284	-0.1218	2.1658	-0.0638
0.3520	2.0700	-0.3083	1.8284	-0.0852	2.1708	0.1129		0.3580	2.0750	0.0122	1.8334	0.1219	2.1658	-0.0638
0.4060	2.0750	-0.0636	1.8284	-0.0852	2.1658	-0.1325		0.4120	2.0700	-0.2325	1.8284	-0.1218	2.1708	0.1816
0.4540	2.0750	-0.0636	1.8284	-0.0852	2.1658	-0.1325		0.4620	2.0750	0.0122	1.8334	0.1219	2.1708	0.1816
0.5040	2.0750	-0.0636	1.8284	-0.0852	2.1708	0.1129		0.5120	2.0700	-0.2325	1.8234	-0.3655	2.1658	-0.0638
0.5530	2.0700	-0.3083	1.8284	-0.0852	2.1658	-0.1325		0.5630	2.0650	-0.4772	1.8533	1.0968	2.1658	-0.0638
0.6030	2.0550	-1.0423	1.8334	0.1585	2.1658	-0.1325		0.6170	2.0450	-1.4559	1.8582	1.3406	2.1658	-0.0638
0.6560	2.0300	-2.2656	1.8881	2.8395	2.1658	-0.1325		0.6650	2.0300	-2.1899	1.8781	2.3155	2.1708	0.1816
0.7090	2.0151	-2.9996	1.8831	2.5958	2.1557	-0.6231		0.7130	2.0151	-2.9239	1.8682	1.8280	2.1758	0.4269
0.7570	2.0300	-2.2656	1.8682	1.8646	2.1708	0.1129		0.7620	2.0251	-2.4346	1.8731	2.0718	2.1557	-0.5545
0.8070	2.0500	-1.2869	1.8731	2.1083	2.1808	0.6036		0.8110	2.0400	-1.7005	1.8632	1.5843	2.1658	-0.0638
0.8600	2.0550	-1.0423	1.8533	1.1334	2.1758	0.3583		0.8640	2.0450	-1.4559	1.8533	1.0968	2.1758	0.4269
0.9080	2.0700	-0.3083	1.8334	0.1585	2.1758	0.3583		0.9160	2.0700	-0.2325	1.8433	0.6094	2.1608	-0.3091
0.9570	2.0750	-0.0636	1.8334	0.1585	2.1457	-1.1139		0.9650	2.0750	0.0122	1.8334	0.1219	2.1457	-1.0452
1.0060	2.0800	0.1811	1.8184	-0.5727	2.1608	-0.3778		1.0160	2.0700	-0.2325	1.8085	-1.0967	2.1758	0.4269
1.0550	2.0500	-1.2869	1.8035	-1.3039	2.1357	-1.6045		1.0700	2.0900	0.7462	1.8184	-0.6093	2.1708	0.1816
1.1050	2.1099	1.6491	1.8135	-0.8164	2.1808	0.6036		1.1270	2.1199	2.2142	1.7936	-1.8279	2.1808	0.6723
1.1570	2.0950	0.9151	1.8035	-1.3039	2.1608	-0.3778		1.1800	2.1399	3.1929	1.7786	-2.5591	2.1908	1.1630
1.2060	2.0900	0.6704	1.8035	-1.3039	2.1608	-0.3778		1.2280	2.1149	1.9695	1.7836	-2.3154	2.1708	0.1816
1.2540	2.1149	1.8938	1.7936	-1.7913	2.1958	1.3397		1.2770	2.1099	1.7249	1.7836	-2.3154	2.1658	-0.0638
1.3020	2.1049	1.4044	1.7936	-1.7913	2.1608	-0.3778		1.3250	2.1049	1.4802	1.7737	-2.8028	2.1608	-0.3091
1.3510	2.1049	1.4044	1.8035	-1.3039	2.1557	-0.6231		1.3750	2.0450	-1.4559	1.8483	0.8531	2.1658	-0.0638
1.3990	2.0950	0.9151	1.8184	-0.5727	2.1758	0.3583		1.4290	2.0800	0.2568	1.8184	-0.6093	2.1608	-0.3091
1.4480	2.0750	-0.0636	1.8184	-0.5727	2.1708	0.1129		1.4780	2.0750	0.0122	1.8334	0.1219	2.1608	-0.3091
1.5010	2.0850	0.4258	1.8334	0.1585	2.1658	-0.1325		1.5280	2.0800	0.2568	1.8284	-0.1218	2.1608	-0.3091
1.5500	2.0950	0.9151	1.8035	-1.3039	2.1708	0.1129		1.5790	2.0650	-0.4772	1.8334	0.1219	2.1758	0.4269
1.5980	2.0700	-0.3083	1.8334	0.1585	2.1758	0.3583		1.6340	2.0750	0.0122	1.8334	0.1219	2.1708	0.1816
1.6480	2.0800	0.1811	1.8284	-0.0852	2.1658	-0.1325		1.6840	2.0750	0.0122	1.8284	-0.1218	2.1658	-0.0638
1.6980	2.0750	-0.0636	1.8284	-0.0852	2.1658	-0.1325		1.7360	2.0750	0.0122	1.8334	0.1219	2.1708	0.1816
1.7530	2.0750	-0.0636	1.8284	-0.0852	2.1658	-0.1325								
1.8020	2.0750	-0.0636	1.8383	0.4022	2.1658	-0.1325								
1.8510	2.0750	-0.0636	1.8284	-0.0852	2.1658	-0.1325								
1.9020	2.0700	-0.3083	1.8234	-0.3290	2.1658	-0.1325								

121

Curvilinear path (1)

Time Second	X-axis Voltage	X-axis m/s^2	Y-axis Voltage	Y-axis m/s^2	Z-axis Voltage	Z-axis m/s^2
0.0010	2.0800	0.0954	1.8334	0.0586	2.1658	-0.1962
0.0500	2.0650	-0.6386	1.8334	0.0586	2.1708	0.0491
0.1030	2.0800	0.0954	1.8334	0.0586	2.1708	0.0491
0.1570	2.0800	0.0954	1.8334	0.0586	2.1708	0.0491
0.2060	2.0800	0.0954	1.8334	0.0586	2.1658	-0.1962
0.2580	2.0750	-0.1492	1.8284	-0.1852	2.1658	-0.1962
0.3120	2.0750	-0.1492	1.8383	0.3023	2.1708	0.0491
0.3620	2.0800	0.0954	1.8383	0.3023	2.1708	0.0491
0.4120	2.0850	0.3401	1.8334	0.0586	2.1708	0.0491
0.4650	2.0850	0.3401	1.8334	0.0586	2.1708	0.0491
0.5150	2.0650	-0.6386	1.8334	0.0586	2.1708	0.0491
0.5640	2.0700	-0.3939	1.8284	-0.1852	2.1758	0.2945
0.6130	2.0600	-0.8833	1.8334	0.0586	2.1708	0.0491
0.6620	2.0650	-0.6386	1.8334	0.0586	2.1708	0.0491
0.7200	2.0700	-0.3939	1.8334	0.0586	2.1708	0.0491
0.7700	2.0650	-0.6386	1.8284	-0.1852	2.1658	-0.1962
0.8220	2.0700	-0.3939	1.8284	-0.1852	2.1708	0.0491
0.8760	2.0600	-0.8833	1.8234	-0.4289	2.1758	0.2945
0.9250	2.0700	-0.3939	1.8284	-0.1852	2.1708	0.0491
0.9780	2.0650	-0.6386	1.8284	-0.1852	2.1708	0.0491
1.0320	2.0650	-0.6386	1.8234	-0.4289	2.1708	0.0491
1.0810	2.0850	0.3401	1.8234	-0.4289	2.1708	0.0491
1.1320	2.0800	0.0954	1.8234	-0.4289	2.1708	0.0491
1.1870	2.0800	0.0954	1.8284	-0.1852	2.1708	0.0491
1.2360	2.0800	0.0954	1.8184	-0.6726	2.1658	-0.1962
1.2850	2.0700	-0.3939	1.8284	-0.1852	2.1658	-0.1962
1.3370	2.0650	-0.6386	1.8284	-0.1852	2.1708	0.0491
1.3910	2.0650	-0.6386	1.8284	-0.1852	2.1758	0.2945
1.4400	2.0700	-0.3939	1.8234	-0.4289	2.1708	0.0491
1.4910	2.0800	0.0954	1.8234	-0.4289	2.1758	0.2945
1.5440	2.0700	-0.3939	1.8234	-0.4289	2.1658	-0.1962
1.5940	2.0850	0.3401	1.8284	-0.1852	2.1658	-0.1962
1.6440	2.0800	0.0954	1.8184	-0.6726	2.1708	0.0491
1.6930	2.0900	0.5848	1.8284	-0.1852	2.1708	0.0491
1.7460	2.0950	0.8294	1.8184	-0.6726	2.1708	0.0491
1.7950	2.0850	0.3401	1.8234	-0.4289	2.1758	0.2945
1.8440	2.0800	0.0954	1.8234	-0.4289	2.1658	-0.1962
1.8940	2.1099	1.5635	1.8234	-0.4289	2.1708	0.0491
1.9470	2.0900	0.5848	1.8234	-0.4289	2.1708	0.0491
2.0000	2.0950	0.8294	1.8184	-0.6726	2.1658	-0.1962
2.0480	2.0950	0.8294	1.8334	0.0586	2.1708	0.0491
2.0970	2.0850	0.3401	1.8234	-0.4289	2.1708	0.0491
2.1490	2.0850	0.3401	1.8234	-0.4289	2.1708	0.0491
2.2040	2.0850	0.3401	1.8334	0.0586	2.1708	0.0491
2.2520	2.0950	0.8294	1.8334	0.0586	2.1708	0.0491
2.3010	2.0750	-0.1492	1.8284	-0.1852	2.1658	-0.1962
2.3530	2.0800	0.0954	1.8334	0.0586	2.1658	-0.1962
2.4080	2.0850	0.3401	1.8334	0.0586	2.1658	-0.1962
2.4570	2.0850	0.3401	1.8284	-0.1852	2.1708	0.0491
2.5090	2.0800	0.0954	1.8234	-0.4289	2.1708	0.0491
2.5640	2.0850	0.3401	1.8334	0.0586	2.1708	0.0491
2.6130	2.0800	0.0954	1.8284	-0.1852	2.1708	0.0491
2.6630	2.0900	0.5848	1.8334	0.0586	2.1658	-0.1962
2.7170	2.0800	0.0954	1.8284	-0.1852	2.1758	0.2945
2.7670	2.0750	-0.1492	1.8383	0.3023	2.1708	0.0491
2.8160	2.0750	-0.1492	1.8284	-0.1852	2.1608	-0.4416
2.8690	2.0900	0.5848	1.8334	0.0586	2.1708	0.0491
2.9220	2.0750	-0.1492	1.8334	0.0586	2.1708	0.0491
2.9690	2.0750	-0.1492	1.8334	0.0586	2.1658	-0.1962
3.0190	2.0950	0.8294	1.8234	-0.4289	2.1758	0.2945
3.0710	2.0800	0.0954	1.8284	-0.1852	2.1658	-0.1962
3.1240	2.0800	0.0954	1.8334	0.0586	2.1708	0.0491
3.1730	2.0800	0.0954	1.8284	-0.1852	2.1708	0.0491
3.2230	2.0750	-0.1492	1.8234	-0.4289	2.1658	-0.1962
3.2750	2.0800	0.0954	1.8383	0.3023	2.1658	-0.1962
3.3290	2.0750	-0.1492	1.8334	0.0586	2.1708	0.0491
3.3780	2.0850	0.3401	1.8284	-0.1852	2.1708	0.0491
3.4280	2.0800	0.0954	1.8284	-0.1852	2.1658	-0.1962

Curvilinear path (2)

Time Second	X-axis Voltage	X-axis m/s^2	Y-axis Voltage	Y-axis m/s^2	Z-axis Voltage	Z-axis m/s^2
0.0000	2.0800	-0.0146	1.8334	-0.1169	2.1758	0.1964
0.0490	2.0800	-0.0146	1.8334	-0.1169	2.1758	0.1964
0.0980	2.0800	-0.0146	1.8334	-0.1169	2.1708	-0.0490
0.1470	2.0800	-0.0146	1.8383	0.1268	2.1708	-0.0490
0.1970	2.0850	0.2301	1.8284	-0.3607	2.1708	-0.0490
0.2490	2.0800	-0.0146	1.8334	-0.1169	2.1708	-0.0490
0.3040	2.0850	0.2301	1.8334	-0.1169	2.1758	0.1964
0.3520	2.0800	-0.0146	1.8433	0.3705	2.1708	-0.0490
0.4050	2.0800	-0.0146	1.8383	0.1268	2.1708	-0.0490
0.4590	2.0750	-0.2593	1.8334	-0.1169	2.1708	-0.0490
0.5090	2.0650	-0.7486	1.8334	-0.1169	2.1758	0.1964
0.5590	2.0650	-0.7486	1.8433	0.3705	2.1708	-0.0490
0.6110	2.0600	-0.9933	1.8383	0.1268	2.1758	0.1964
0.6630	2.0550	-1.2379	1.8334	-0.1169	2.1708	-0.0490
0.7120	2.0500	-1.4826	1.8334	-0.1169	2.1758	0.1964
0.7640	2.0550	-1.2379	1.8284	-0.3607	2.1758	0.1964
0.8170	2.0750	-0.2593	1.8284	-0.3607	2.1758	0.1964
0.8660	2.0600	-0.9933	1.8284	-0.3607	2.1708	-0.0490
0.9150	2.0600	-0.9933	1.8234	-0.6044	2.1708	-0.0490
0.9640	2.0700	-0.5039	1.8234	-0.6044	2.1758	0.1964
1.0160	2.0700	-0.5039	1.8184	-0.8481	2.1758	0.1964
1.0680	2.0750	-0.2593	1.8234	-0.6044	2.1708	-0.0490
1.1170	2.0850	0.2301	1.8184	-0.8481	2.1758	0.1964
1.1660	2.0950	0.7194	1.8234	-0.6044	2.1758	0.1964
1.2160	2.0850	0.2301	1.8234	-0.6044	2.1708	-0.0490
1.2690	2.0800	-0.0146	1.8184	-0.8481	2.1758	0.1964
1.3190	2.0850	0.2301	1.8234	-0.6044	2.1758	0.1964
1.3680	2.0800	-0.0146	1.8334	-0.1169	2.1708	-0.0490
1.4200	2.0850	0.2301	1.8234	-0.6044	2.1708	-0.0490
1.4740	2.0800	-0.0146	1.8234	-0.6044	2.1708	-0.0490
1.5230	2.0750	-0.2593	1.8284	-0.3607	2.1708	-0.0490
1.5720	2.0750	-0.2593	1.8234	-0.6044	2.1758	0.1964
1.6240	2.0950	0.7194	1.8234	-0.6044	2.1708	-0.0490
1.6770	2.1000	0.9641	1.8334	-0.1169	2.1708	-0.0490
1.7260	2.0950	0.7194	1.8234	-0.6044	2.1708	-0.0490
1.7740	2.1049	1.2088	1.8334	-0.1169	2.1708	-0.0490
1.8230	2.1000	0.9641	1.8284	-0.3607	2.1708	-0.0490
1.8750	2.0950	0.7194	1.8334	-0.1169	2.1708	-0.0490
1.9290	2.0850	0.2301	1.8383	0.1268	2.1708	-0.0490
1.9760	2.0900	0.4748	1.8334	-0.1169	2.1658	-0.2943
2.0260	2.0850	0.2301	1.8383	0.1268	2.1658	-0.2943
2.0780	2.0850	0.2301	1.8334	-0.1169	2.1708	-0.0490
2.1320	2.0800	-0.0146	1.8334	-0.1169	2.1758	0.1964
2.1820	2.0800	-0.0146	1.8383	0.1268	2.1708	-0.0490
2.2340	2.0850	0.2301	1.8334	-0.1169	2.1758	0.1964
2.2880	2.0750	-0.2593	1.8334	-0.1169	2.1758	0.1964
2.3380	2.0900	0.4748	1.8284	-0.3607	2.1908	0.9324
2.3890	2.0750	-0.2593	1.8334	-0.1169	2.1608	-0.5397
2.4420	2.0800	-0.0146	1.8284	-0.3607	2.1708	-0.0490
2.4920	2.0800	-0.0146	1.8334	-0.1169	2.1658	-0.2943
2.5450	2.0850	0.2301	1.8334	-0.1169	2.1858	0.6871
2.5990	2.0800	-0.0146	1.8433	0.3705	2.1808	0.4417
2.6470	2.0750	-0.2593	1.8383	0.1268	2.1708	-0.0490
2.6960	2.0800	-0.0146	1.8334	-0.1169	2.1758	0.1964
2.7490	2.0750	-0.2593	1.8284	-0.3607	2.1758	0.1964

Curvilinear path (3)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0750	-0.1956	1.8383	0.1146	2.1758	0.1866
0.0470	2.0750	-0.1956	1.8334	-0.1291	2.1758	0.1866
0.0990	2.0850	0.2938	1.8334	-0.1291	2.1758	0.1866
0.1480	2.0850	0.2938	1.8334	-0.1291	2.1708	-0.0588
0.1970	2.0800	0.0491	1.8334	-0.1291	2.1708	-0.0588
0.2480	2.0850	0.2938	1.8383	0.1146	2.1708	-0.0588
0.3020	2.0800	0.0491	1.8334	-0.1291	2.1708	-0.0588
0.3510	2.0750	-0.1956	1.8334	-0.1291	2.1758	0.1866
0.4000	2.0800	0.0491	1.8383	0.1146	2.1708	-0.0588
0.4490	2.0750	-0.1956	1.8383	0.1146	2.1708	-0.0588
0.5020	2.0700	-0.4402	1.8433	0.3583	2.1758	0.1866
0.5570	2.0550	-1.1743	1.8334	-0.1291	2.1708	-0.0588
0.6050	2.0600	-0.9296	1.8334	-0.1291	2.1708	-0.0588
0.6570	2.0550	-1.1743	1.8284	-0.3728	2.1758	0.1866
0.7110	2.0500	-1.4189	1.8334	-0.1291	2.1708	-0.0588
0.7730	2.0650	-0.6849	1.8334	-0.1291	2.1708	-0.0588
0.8220	2.0750	-0.1956	1.8334	-0.1291	2.1708	-0.0588
0.8710	2.0600	-0.9296	1.8284	-0.3728	2.1658	-0.3041
0.9230	2.0750	-0.1956	1.8284	-0.3728	2.1708	-0.0588
0.9770	2.0750	-0.1956	1.8234	-0.6166	2.1708	-0.0588
1.0250	2.0750	-0.1956	1.8284	-0.3728	2.1708	-0.0588
1.0750	2.0750	-0.1956	1.8284	-0.3728	2.1708	-0.0588
1.1290	2.0750	-0.1956	1.8184	-0.8603	2.1758	0.1866
1.1780	2.0800	0.0491	1.8184	-0.8603	2.1758	0.1866
1.2260	2.0800	0.0491	1.8234	-0.6166	2.1708	-0.0588
1.2740	2.0750	-0.1956	1.8234	-0.6166	2.1708	-0.0588
1.3240	2.0900	0.5384	1.8234	-0.6166	2.1708	-0.0588
1.3730	2.0800	0.0491	1.8234	-0.6166	2.1708	-0.0588
1.4270	2.0800	0.0491	1.8284	-0.3728	2.1708	-0.0588
1.4770	2.0800	0.0491	1.8234	-0.6166	2.1758	0.1866
1.5240	2.0850	0.2938	1.8234	-0.6166	2.1808	0.4319
1.5730	2.0800	0.0491	1.8234	-0.6166	2.1708	-0.0588
1.6240	2.0950	0.7831	1.8234	-0.6166	2.1658	-0.3041
1.6770	2.1249	2.2511	1.8234	-0.6166	2.1658	-0.3041
1.7260	2.0950	0.7831	1.8284	-0.3728	2.1758	0.1866
1.7740	2.0800	0.0491	1.8284	-0.3728	2.1758	0.1866
1.8230	2.1000	1.0278	1.8284	-0.3728	2.1708	-0.0588
1.8730	2.1000	1.0278	1.8334	-0.1291	2.1758	0.1866
1.9270	2.0600	-0.9296	1.8433	0.3583	2.1658	-0.3041
1.9770	2.0850	0.2938	1.8383	0.1146	2.1658	-0.3041
2.0250	2.0700	-0.4402	1.8284	-0.3728	2.1758	0.1866
2.0770	2.0800	0.0491	1.8284	-0.3728	2.1758	0.1866
2.1310	2.0850	0.2938	1.8334	-0.1291	2.1758	0.1866
2.1810	2.0900	0.5384	1.8334	-0.1291	2.1708	-0.0588
2.2290	2.0800	0.0491	1.8383	0.1146	2.1708	-0.0588
2.2790	2.0800	0.0491	1.8334	-0.1291	2.1708	-0.0588
2.3340	2.0800	0.0491	1.8383	0.1146	2.1708	-0.0588
2.3830	2.0750	-0.1956	1.8284	-0.3728	2.1708	-0.0588
2.4330	2.0850	0.2938	1.8334	-0.1291	2.1708	-0.0588
2.4820	2.0800	0.0491	1.8433	0.3583	2.1708	-0.0588
2.5360	2.0800	0.0491	1.8383	0.1146	2.1708	-0.0588
2.5850	2.0800	0.0491	1.8383	0.1146	2.1708	-0.0588
2.6340	2.0800	0.0491	1.8334	-0.1291	2.1758	0.1866
2.6830	2.0800	0.0491	1.8334	-0.1291	2.1708	-0.0588
2.7340	2.0750	-0.1956	1.8383	0.1146	2.1758	0.1866

Curvilinear path (4)

Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0800	0.0124	1.8334	-0.0926	2.1708	0.0074
0.0460	2.0850	0.2570	1.8334	-0.0926	2.1708	0.0074
0.0950	2.0800	0.0124	1.8383	0.1512	2.1708	0.0074
0.1450	2.0800	0.0124	1.8383	0.1512	2.1708	0.0074
0.1970	2.0750	-0.2323	1.8334	-0.0926	2.1708	0.0074
0.2450	2.0850	0.2570	1.8383	0.1512	2.1758	0.2528
0.2990	2.0750	-0.2323	1.8334	-0.0926	2.1708	0.0074
0.3490	2.0750	-0.2323	1.8284	-0.3363	2.1708	0.0074
0.4010	2.0800	0.0124	1.8383	0.1512	2.1758	0.2528
0.4540	2.0700	-0.4770	1.8334	-0.0926	2.1708	0.0074
0.5050	2.0750	-0.2323	1.8383	0.1512	2.1758	0.2528
0.5570	2.0600	-0.9663	1.8433	0.3949	2.1708	0.0074
0.6110	2.0600	-0.9663	1.8383	0.1512	2.1708	0.0074
0.6590	2.0500	-1.4557	1.8334	-0.0926	2.1758	0.2528
0.7080	2.0400	-1.9450	1.8284	-0.3363	2.1758	0.2528
0.7650	2.0600	-0.9663	1.8284	-0.3363	2.1708	0.0074
0.8140	2.0700	-0.4770	1.8334	-0.0926	2.1758	0.2528
0.8630	2.0650	-0.7217	1.8234	-0.5800	2.1708	0.0074
0.9120	2.0650	-0.7217	1.8284	-0.3363	2.1658	-0.2379
0.9630	2.0700	-0.4770	1.8234	-0.5800	2.1708	0.0074
1.0170	2.0750	-0.2323	1.8184	-0.8237	2.1758	0.2528
1.0660	2.0750	-0.2323	1.8184	-0.8237	2.1658	-0.2379
1.1150	2.0850	0.2570	1.8184	-0.8237	2.1708	0.0074
1.1660	2.0750	-0.2323	1.8135	-1.0675	2.1708	0.0074
1.2210	2.0850	0.2570	1.8184	-0.8237	2.1708	0.0074
1.2710	2.0900	0.5017	1.8184	-0.8237	2.1708	0.0074
1.3210	2.0800	0.0124	1.8234	-0.5800	2.1708	0.0074
1.3740	2.0900	0.5017	1.8234	-0.5800	2.1708	0.0074
1.4240	2.0800	0.0124	1.8234	-0.5800	2.1808	0.4981
1.4730	2.0900	0.5017	1.8184	-0.8237	2.1708	0.0074
1.5250	2.0850	0.2570	1.8234	-0.5800	2.1808	0.4981
1.5780	2.0900	0.5017	1.8234	-0.5800	2.1708	0.0074
1.6270	2.0950	0.7464	1.8284	-0.3363	2.1658	-0.2379
1.6760	2.0950	0.7464	1.8234	-0.5800	2.1658	-0.2379
1.7260	2.1000	0.9911	1.8284	-0.3363	2.1758	0.2528
1.7860	2.0950	0.7464	1.8334	-0.0926	2.1708	0.0074
1.8370	2.1099	1.4804	1.8334	-0.0926	2.1658	-0.2379
1.8910	2.0950	0.7464	1.8383	0.1512	2.1708	0.0074
1.9400	2.0900	0.5017	1.8334	-0.0926	2.1708	0.0074
1.9890	2.0800	0.0124	1.8284	-0.3363	2.1658	-0.2379
2.0400	2.0700	-0.4770	1.8383	0.1512	2.1758	0.2528
2.0940	2.0950	0.7464	1.8284	-0.3363	2.1708	0.0074
2.1430	2.0850	0.2570	1.8334	-0.0926	2.1708	0.0074
2.1930	2.0850	0.2570	1.8383	0.1512	2.1758	0.2528
2.2410	2.0800	0.0124	1.8334	-0.0926	2.1758	0.2528
2.2960	2.0800	0.0124	1.8383	0.1512	2.1758	0.2528
2.3450	2.0850	0.2570	1.8383	0.1512	2.1708	0.0074
2.3950	2.0850	0.2570	1.8334	-0.0926	2.1708	0.0074
2.4450	2.0800	0.0124	1.8383	0.1512	2.1758	0.2528
2.4970	2.0750	-0.2323	1.8334	-0.0926	2.1708	0.0074
2.5470	2.0850	0.2570	1.8383	0.1512	2.1708	0.0074
2.5960	2.0550	-1.2110	1.8383	0.1512	2.1608	-0.4833
2.6450	2.0800	0.0124	1.8334	-0.0926	2.1608	-0.4833
2.6960	2.0800	0.0124	1.8383	0.1512	2.1708	0.0074
2.7520	2.0800	0.0124	1.8383	0.1512	2.1758	0.2528
2.8020	2.0900	0.5017	1.8383	0.1512	2.1708	0.0074
2.8510	2.0800	0.0124	1.8433	0.3949	2.1708	0.0074
2.9050	2.0750	-0.2323	1.8334	-0.0926	2.1758	0.2528
2.9540	2.0800	0.0124	1.8334	-0.0926	2.1708	0.0074

Curvilinear path (5)						
Time	X-axis		Y-axis		Z-axis	
Second	Voltage	m/s^2	Voltage	m/s^2	Voltage	m/s^2
0.0000	2.0750	-0.1443	1.8383	0.1463	2.1708	-0.0760
0.0490	2.0750	-0.1443	1.8334	-0.0974	2.1808	0.4148
0.0990	2.0700	-0.3890	1.8334	-0.0974	2.1708	-0.0760
0.1480	2.0800	0.1004	1.8284	-0.3412	2.1758	0.1694
0.1990	2.0800	0.1004	1.8284	-0.3412	2.1708	-0.0760
0.2520	2.0800	0.1004	1.8334	-0.0974	2.1708	-0.0760
0.3010	2.0750	-0.1443	1.8334	-0.0974	2.1708	-0.0760
0.3510	2.0750	-0.1443	1.8383	0.1463	2.1708	-0.0760
0.4000	2.0750	-0.1443	1.8383	0.1463	2.1758	0.1694
0.4520	2.0700	-0.3890	1.8383	0.1463	2.1708	-0.0760
0.5070	2.0700	-0.3890	1.8383	0.1463	2.1708	-0.0760
0.5560	2.0650	-0.6337	1.8383	0.1463	2.1658	-0.3213
0.6070	2.0650	-0.6337	1.8383	0.1463	2.1708	-0.0760
0.6600	2.0650	-0.6337	1.8284	-0.3412	2.1708	-0.0760
0.7090	2.0750	-0.1443	1.8433	0.3900	2.1708	-0.0760
0.7590	2.0700	-0.3890	1.8284	-0.3412	2.1708	-0.0760
0.8100	2.0600	-0.8783	1.8284	-0.3412	2.1708	-0.0760
0.8640	2.0650	-0.6337	1.8334	-0.0974	2.1758	0.1694
0.9120	2.0750	-0.1443	1.8334	-0.0974	2.1708	-0.0760
0.9620	2.0600	-0.8783	1.8284	-0.3412	2.1808	0.4148
1.0090	2.0700	-0.3890	1.8334	-0.0974	2.1708	-0.0760
1.0600	2.0750	-0.1443	1.8334	-0.0974	2.1758	0.1694
1.1140	2.0800	0.1004	1.8284	-0.3412	2.1758	0.1694
1.1630	2.0700	-0.3890	1.8184	-0.8286	2.1758	0.1694
1.2120	2.0750	-0.1443	1.8184	-0.8286	2.1708	-0.0760
1.2630	2.0800	0.1004	1.8184	-0.8286	2.1758	0.1694
1.3180	2.0800	0.1004	1.8234	-0.5849	2.1758	0.1694
1.3660	2.0800	0.1004	1.8284	-0.3412	2.1708	-0.0760
1.4170	2.0850	0.3450	1.8234	-0.5849	2.1708	-0.0760
1.4700	2.0750	-0.1443	1.8184	-0.8286	2.1758	0.1694
1.5190	2.0750	-0.1443	1.8234	-0.5849	2.1758	0.1694
1.5680	2.0850	0.3450	1.8284	-0.3412	2.1658	-0.3213
1.6160	2.0900	0.5897	1.8284	-0.3412	2.1758	0.1694
1.6650	2.1000	1.0790	1.8284	-0.3412	2.1758	0.1694
1.7170	2.1099	1.5684	1.8284	-0.3412	2.1758	0.1694
1.7780	2.1000	1.0790	1.8334	-0.0974	2.1758	0.1694
1.8310	2.1049	1.3237	1.8383	0.1463	2.1658	-0.3213
1.8800	2.0850	0.3450	1.8334	-0.0974	2.1708	-0.0760
1.9290	2.0850	0.3450	1.8284	-0.3412	2.1708	-0.0760
1.9780	2.0900	0.5897	1.8284	-0.3412	2.1758	0.1694
2.0300	2.0900	0.5897	1.8383	0.1463	2.1708	-0.0760
2.0830	2.0850	0.3450	1.8383	0.1463	2.1708	-0.0760
2.1320	2.0800	0.1004	1.8334	-0.0974	2.1708	-0.0760
2.1840	2.0800	0.1004	1.8383	0.1463	2.1708	-0.0760
2.2380	2.0800	0.1004	1.8383	0.1463	2.1658	-0.3213
2.2870	2.0850	0.3450	1.8383	0.1463	2.1708	-0.0760
2.3360	2.0800	0.1004	1.8334	-0.0974	2.1758	0.1694
2.3870	2.0800	0.1004	1.8334	-0.0974	2.1758	0.1694
2.4410	2.0850	0.3450	1.8383	0.1463	2.1658	-0.3213
2.4900	2.0750	-0.1443	1.8383	0.1463	2.1708	-0.0760
2.5380	2.1049	1.3237	1.8433	0.3900	2.1958	1.1508
2.5870	2.0850	0.3450	1.8383	0.1463	2.1708	-0.0760
2.6390	2.0800	0.1004	1.8334	-0.0974	2.1708	-0.0760
2.6930	2.0800	0.1004	1.8334	-0.0974	2.1758	0.1694
2.7420	2.0800	0.1004	1.8334	-0.0974	2.1708	-0.0760
2.7910	2.0850	0.3450	1.8383	0.1463	2.1708	-0.0760
2.8430	2.0850	0.3450	1.8383	0.1463	2.1758	0.1694
2.8970	2.0800	0.1004	1.8334	-0.0974	2.1708	-0.0760

124

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